KLING STUBBINS

Massachusetts State Laboratory

Improvements Study ST 02R

Inventory and Analysis

Project Number DPH 0702 ST1

February, 2012

Agencies

Department of Public Health

University of Massachusetts Medical School

Prepared for:

Division of Capital Asset Management

Carole Cornelison, Commissioner

Office of Planning, Design and Construction

Elizabeth Minnis, Deputy Commissioner

Ellen Whittemore, Deputy Director of Programming

DCAM Manager

Charles Deknatel

KLING STUBBINS

Massachusetts State Laboratory

Improvements Study ST 02R
Inventory and Analysis

February, 2012

2.1 Executive Summary

2.2 Study Background

2.3 Existing Conditions of Site and Facilities

- Site
- Tower Building
- Biologics Building
- Stable Building

2.4 Program Overview

2.5 Tower Building Program Analysis

2.6 Cost Information

2.7 Diagnosis of Facility Problems, Needs, Constraints and Opportunities

2.8 Attachments

A	Tabular Program
B	Campus Organizational Chart
C	Site Plan
D	Utility Site Plan
E	Tower Building Floor Plans
F	Biologics Building Floor Plans
G	Stable Building Floor Plans
H	Regulatory Review
I	January 5, 2012 Workshop Summary

2.1 Executive Summary

2.1.1 Focus of Study

This study was initiated in 2007 to address long term renovation needs at the State Laboratory in Jamaica Plain. The Massachusetts State Laboratory campus contains three major structures referenced as the Tower, Biologics, and Stable buildings comprising nearly 260,000 BGSF. In addition, there are many pre-fabricated metal buildings which house support electrical and fire protection infrastructure.

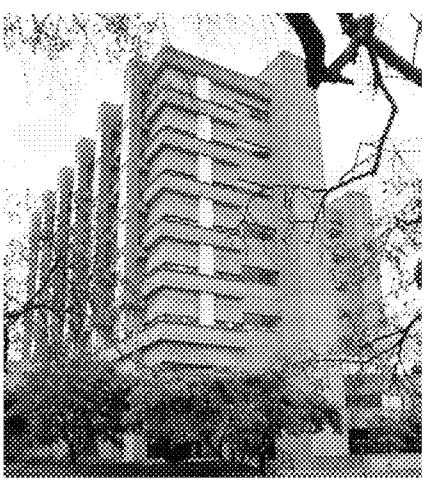
The Massachusetts State Laboratory space is shared by both the Department of Public Health (DPH) and the University of Massachusetts Medical School (UMMS); functions include key laboratory, administrative and research components utilized by state agencies.

2.1.2 Study Process

The team developed extensive program information and assessment of building systems in 2007-2009. Since then the study has provided a framework for initiating three emergency projects. Two of these addressed electrical infrastructure for all buildings. The third project addressed HVAC conditions in laboratories in the Tower Building. These have led to approximately $20M in building improvements. This report was summarized during a January 5, 2012 Workshop, please refer to Attachment I for additional information.

2.1.3 Revised Inventory and Analysis Report

This report is intended to provide a synopsis of the information prepared from the project inception to October 2011, including revised programming and spatial allocation data for the campus and a summary statement of key deficiencies, opportunities and constraints. It identifies both potentials for renovation and spatial reorganization of the Tower Building plus repair or replacement of key systems in the Tower Building, Stable Building, and the Biologics Building. Cost ranges and space planning benchmarks are noted.

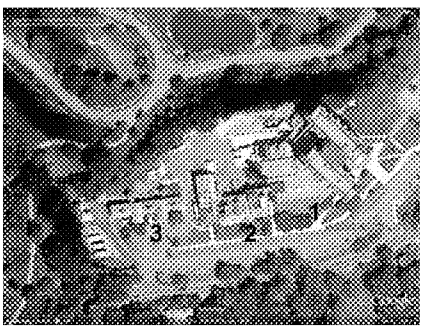


Many specific needs have already been identified including accessibility improvements, building code issues, possible boiler and fuel source replacement, elevator upgrades, electrical distribution within the laboratory areas and completion of the HVAC upgrade beyond the critical laboratory areas and core equipment that were addressed in the recently completed emergency project.

The next steps will be to proceed to the ST-03 portion of the report, and to develop an option matrix which will address short and long term needs for the facility at a master planning level in order to establish resource needs.

2.2 Study Background

The Massachusetts State Laboratory (MSL) serves the Commonwealth by identifying causes of disease and helping to limit their spread throughout the populace. It is the only laboratory in the state that performs tests for rabies, arboviruses, botulism, pandemic strains of influenza, and many other pathogens. It also performs important functions in chemical testing, and is the only laboratory in the state that can adequately test for chemical and biological agents of terrorism. The MSL performs a vital function in maintaining public health and safety in Massachusetts.



1. Tower Building
2. Biologics Building
3. Stable Building

The MSL campus is located at 305 South Street in Jamaica Plain and occupies approximately seven acres. The campus buildings are comprised of three primary structures: the Tower Building, the Biologics Building (which is used for the manufacture of vaccines) and the Stable Building. The total Building Gross Square Footage (BGSF) of all three structures is as follows:

- Tower 208,000 BGSF
- Biologics 34,000 BGSF
- Stable 18,000 BGSF
- **Total 260,000 BGSF**

The campus also includes numerous pre-fabricated metal panel out-buildings mainly related to stand-by power, loading and material handling dock area, surface parking and a "community garden" utilized by neighboring residents.

The purpose of this report is to update and synthesize the extensive inventory and analysis work which was conducted by the study team from 2007 to 2009. This prior phase of work concluded with an Executive Briefing in June 2009 and included a six volume draft report on the campus buildings, including facilities investigations and analysis of all building systems, and detailed program development for all departments including documentation for the use of each space, its comparison to program standards for "right sizing" evaluation and growth projections as they existed during that timeframe.

The 2008 ST-02 Draft Study included the following volumes:

- **Book 1 – Executive summary, program data, benchmarking & analysis**. This first volume provided a detailed overview of the campus organization, FTEs and key recommendations, including:
  1. Receipt and processing of incoming specimens should be improved.
  2. The number of building entrances should be reduced.
  3. The quantity of BSL-3 labs should be increased.
  4. A comprehensive Laboratory Information System (LIMS) should be considered.
  5. The IT, A/V and telecommunications systems should all be state-of-the art equipment.
  6. Adjacencies for many of the labs are problematic; improving them will increase efficiency and enhance security.
  7. Lab procedures and protocols should be made more systematic to comply with commonly-accepted practices.
  8. Storage requirements should be more efficient.
  9. Current paper file storage is quite extensive and requirements should be reviewed.
  10. The expansion of the Training Lab is recommended.
  11. Sizes of offices and workstations in the administrative and support areas should be standardized.
  12. MEP systems require significant upgrades.
  13. Parking capacity should be increased on campus and overall site security should be enhanced.
  14. Construction phasing should be factored into any recommendations for renovation and/or new construction, as ongoing operations must not be compromised.
- **Book 2 - Existing condition data collection and analysis**. The second volume included use group floor plans, code review, and site/building assessment by discipline.
- **Book 3 – Existing photographs**. A volume dedicated to photographic images of the entire campus.

- **Book 4 – MEP/FP existing condition analysis**. Volume four provided a detailed assessment of MEP/FP components, including equipment spreadsheets, assessment forms, and single line diagrams.
- **Book 5 – Program forms**. This volume captured the detailed spatial requirements for the program, which resulted from the user interview process.
- **Book 6 – Benchmarking data**. The last volume provided back-up data for ten peer institutions surveyed. Information includes answers to the Benchmarking Questionnaire, facility floor plans, images, and other pertinent facts. Respondents stated that their facilities were built from 1997-2008, with costs ranging from $159-$340 per Building Gross Square Foot.

The June 8, 2009 Executive Briefing summarized the team's findings, noting the following items:

Program Deficiencies

- The Tower and Stable buildings do not provide adequate office or lab spaces for existing uses.
- The configuration of the existing spaces does not conform to peer institutional benchmarks.
- Existing adjacencies are inefficient between and within departments.
- Major infrastructure improvements are required to maintain operations.

Tower Building Planning Advantages

- The 11' structural module is conducive to lab planning, with a single interior column line.
- The four stair shafts provide an opportunity to create flexible egress paths.
- The exterior duct risers could be accessed for retrofit with no interior disruption.
- The relatively shallow floor plate depth could afford maximum interior light penetration.

Since 2009, study efforts have been directed toward emergency electric projects and an emergency HVAC project all of which have been completed. A study task addressing boiler and fuel replacement is in process.

From 2010 to 2011 the study materials have been updated to address the current building program, space allocation, and current conditions within the facility.

This study document is intended to provide an overview of current issues at the MSL campus, and a framework for development of future improvements, based on updated information and planning assumptions.

2.3 Existing Conditions of Site and Facilities

2.3.1 Site Zoning

Although the Commonwealth is exempt from local zoning, the provisions of ordinances are typically reviewed and addressed where possible as projects are developed.

The MSL campus is located within the Jamaica Plain Neighborhood Zoning District. The property falls within two zoning subdistricts and one overlay district as defined on BRA Zoning Map 9A dated September 19, 2003 downloaded from the BRA web site.

The main property including the Tower Building, Biologic Laboratory Building, the Stable Building, and the associated parking lots, trailers and storage sheds are located within zoning district 1F-5000 (Single Family Residential Subdistrict).

A portion of the east on-grade parking lot and the community garden are located within the OS-BZ (Open Space Botanical Zoological Subdistrict).

The property frontage that borders South Street is within the Greenbelt Protection Overlay District.

2.3.2 Site Context

Below is a site image from Google Earth that shows the MSL campus and it environs. A site survey plan is included in Attachment C of this report.

Legend

1. Tower Building
2. Biologics Building
3. Stable Building
4. Residential Area
5. Arnold Arboretum
6. Forest Hills Transit Station

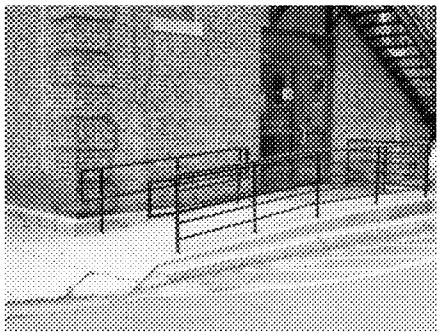
2.3.3 Site Conditions

Campus Buildings

The Massachusetts State Laboratory campus contains three major structures referenced as the Tower, Biologics, and Stable buildings. In addition, there are many pre-fabricated metal buildings which house support functions such as electrical distribution, standby power, and fire protection pumping.

Vehicular Pavement and Curbing

The primary road system on site is a bituminous pavement with a mix of vertical granite curbing and bituminous curbing. There are numerous areas with no curbing. There are significant areas throughout the campus where the bituminous pavement is in disrepair.



Site Access and Circulation

The site is accessible from two locations on South Street. The primary entrance is a one-way loop driveway with a secondary entrance on the west end of the site. Deliveries utilize the loading dock located behind the Tower Building, or drop-off smaller items to the front entrance or sample receiving area on the east side of the Tower Building. All parking areas are accessed by the loop driveway.

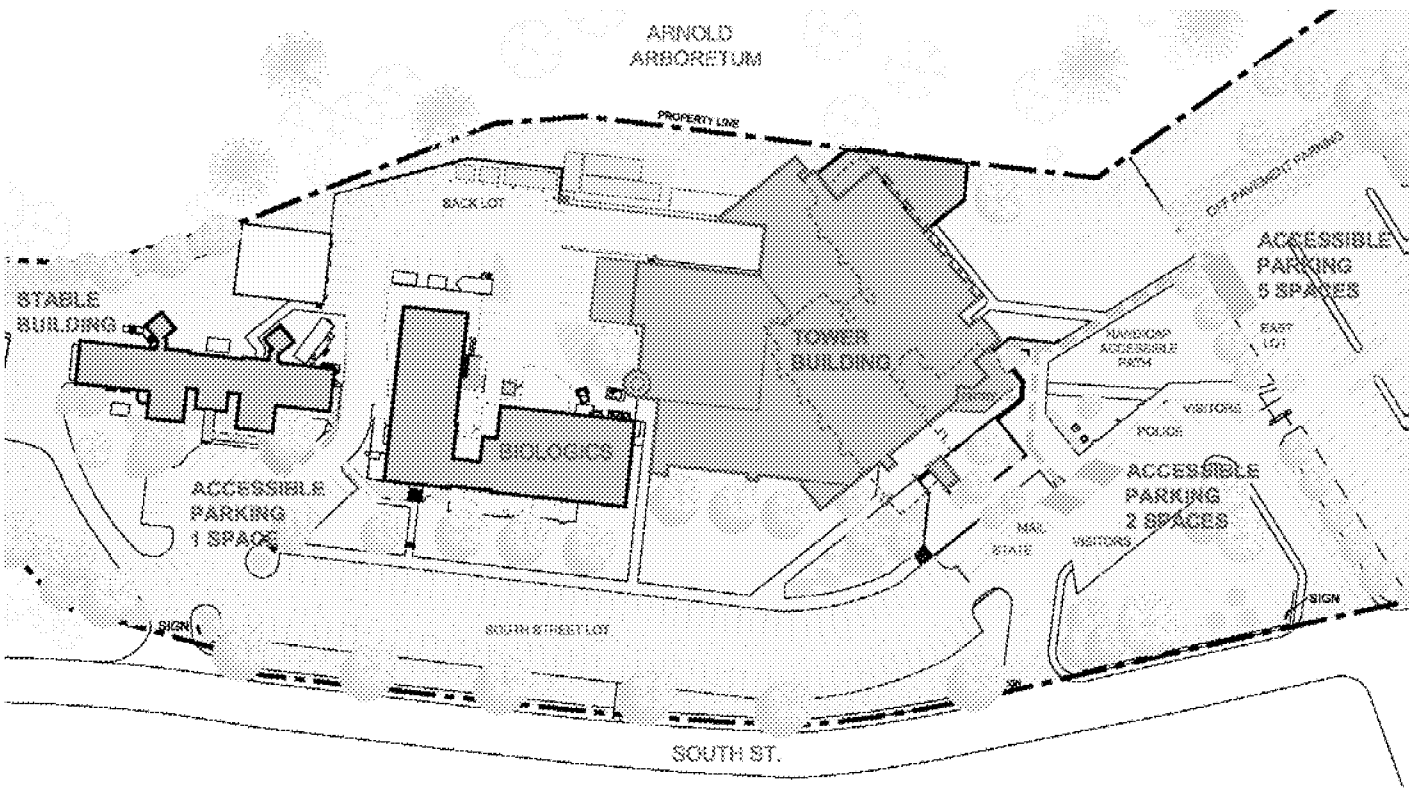
The ADA overview by KlingStubbins, dated September 25, 2009 noted that not all entrances are accessible, and further recommended that all entrances used by general public and general employees should be ADA compliant, and fitted with power assist openers for high-traffic doors.

The current parking capacity is approximately 350 cars distributed across the campus. ADA standards require 8 accessible parking spaces based on this total. These spaces are found in a few locations across the campus. There are two areas that serve the Tower Building; five spaces are located immediately to the northeast of the main entrance. These spaces are not ADA compliant as they do not have the specified access aisles, pavement markings and proper signage. There is a path of travel to the front door of the Tower building from these spaces that incorporates a handicap ramp; the ramp is in need of repair with uneven pavement and non-compliant handrails. Two additional accessible spaces are located within the loop road to the southeast of the main entry; these spaces are provided with a curb cut and ramp to the front plaza.

There is one accessible parking space located to the south outside of the Stable building front door. A concrete walk leading from the front of the parking space provides an accessible route to the front door. A handicap ramp is located at the east entry to provide a second accessible entrance.

The sketch below illustrates the location of the current handicap spaces and accessible routes. The pavements along all accessible routes are degraded to varying degrees | it is likely that none of the routes are fully compliant. Deficiencies include:

- Worn or missing pavement markings;
- Lack of proper signage;
- Pedestrian paving and curb cuts which are are in very poor condition and need of replacement.



The campus has walkways that are connected to the sidewalk along South Street. The sidewalk provides a route to the adjacent transit station. There are handicap curb ramps at all street crossings along this route however South Street is steep in areas and the sidewalk is in poor condition in places.

Parking Capacity

Based on a VHB study dated April 21, 2004, the campus has approximately 350 parking spaces distributed among the East Lot, Front Drive, South Street Lot, Back Lot, and Stable Building. The campus currently employs approximately 700 full-time and part-time staff for the day time shift. Parking continues to be problematic at the campus; the VHB report recommended 150 parking space be added by expanding the East Lot or adding a structured parking deck.

Site Topography

The campus is situated on a plateau in relation its immediate surroundings, and is bordered by the Arnold Arboretum to the north and west, South Street along the south property line, and the Arborway to the east. There is a residential neighborhood to the south comprising approximately 30 homes. The residents of this neighborhood are affected by the traffic, noise and other activities that occur on a regular basis at the MSL.

The ground elevations range from 53' to 85' across the site. The Tower building is centrally located and sits near the highest point of the site with a first floor entry elevation of approximately 87'. The Biologics building to the west has numerous entries ranging in elevation from 80' to 90', and the Stable building further to the west has entries at 86.7' and 75.94'. There are a number of stairs at building entries and throughout the site to accommodate the changes in grade.

On-grade parking lots are located to the east and along the south edge of the site adjacent to South Street. The east parking area sits at a grade of 85' to 81'. The ground slopes away to the east and rolls down to an elevation of about 53' at the edge of the Arborway. The north corner of the site is elevated above the Arborway with a retaining wall of varying height at the property line. The south parking area is separated from South Street by a landscaped berm about 3-4' high. It ranges in elevation from 78' to 94'. There is some additional parking to the south of the Stable Building and to the North of the Lab Building. At the west end of the site the grade falls way beyond the Stable Building to an elevation of about 68 where the site abuts the Arboretum.

Drainage / Erosion Control

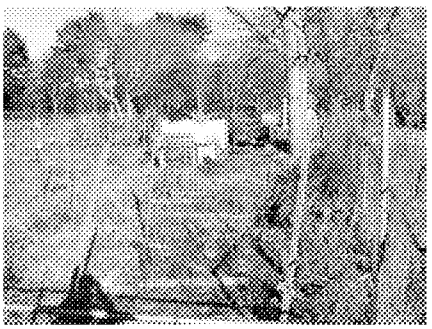
The campus buildings have significant slopes away from the structures to the perimeter of the property, with the exception of a low retaining wall behind the new generator switchgear enclosure, on the north side of the site. There are a number of paved areas on site that have exhibited standing water indicating a lack of proper drainage. The service area behind the Biologic Laboratory Building has water collecting in a low spot away from any of the catch basins in the area.

The east parking lot does not have any curbing to control stormwater drainage. In many areas water apparently flows across the pavement onto the adjacent open space areas shared property line with the Arboretum

Site Vegetation

There is a buffer of mature trees and chain link fencing along the north and east property line providing a sense of separation from the Arboretum and the Arborway. The fence is in need of repair and there are a number of old wells or excavations that are marked by warning tape due to hazardous conditions. The trees need attention by an arborist. Some of the existing planting on campus has become overgrown and a visual barrier in places. For example, the evergreen shrubs in the planter adjacent to the main entry stair to the Tower building block the view to the main entry and hide the handicap ramp. There is a significant evergreen tree in front of the Stable building that appears to block the views from the building. There are also areas of very sparse planting that would benefit from some carefully chosen additional plant materials. The raised planter at the main entry stair to the Tower building and the sloped area in front of the Biologics building are two such areas. The planting along the south facing slope between the Tower and the Biologics building is the most attractive on site and could be expanded.

There is no tree planting within the east parking lot. This may be desirable for security reasons to provide proper CCTV coverage, however a parking lot of this size with no trees presents a more industrial character. There is a Community Garden located directly adjacent to the east parking lot.



Community Garden

The Community Garden is located directly adjacent to the east parking lot. At times the garden appears to be somewhat messy and not well maintained. The chain link fence enclosing the garden is displaced and out of alignment in places. With some carefully chosen border planting and proper care and maintenance, the garden could be an aesthetic focal point for the property and a showcase for public and private collaboration.

Site Utilities

There are numerous utilities serving this facility. The current site survey has identified many of these utilities through the use of ground penetrating radar and visual inspection. Some of these utilities are identified as unknown, and could be old or abandoned. A color-coded diagrammatic utility site plan is included in Attachment D of this document.

2.3.4 Tower Building

The majority of the functions of the campus are located in the Tower building, which was completed in the early 1970s. Since that time, lab technology, protocols, and procedures have undergone profound changes, as have the standards for the programming, design and construction of laboratory buildings. The Tower building is subdivided into two wings, which tend to preclude laboratory divisions from operating in an integrated fashion. In addition, the infrastructure (Mechanical, Electrical, and Plumbing systems (MEP) is in need of substantial upgrading, exterior envelope repairs are required, and certain aspects of the physical plant are not code-compliant (this is especially true with regard to issues of accessibility and life safety). The building operates continuously on a 24/7 basis.

Tower Building Overview

The Basement and first two levels of the Tower building vary in floor area and are larger than the tower levels which are floors 3 through 8. Tower floor levels are split into east and west wings, and connected at every floor by an elevator and toilet room core linking the wings.

The dominant exterior material is cast-in-place concrete spandrel beams and walls with a smooth architectural finish and steel frame strip windows. Perimeter columns are expressed outboard of the exterior building face and support exterior mechanical shafts

which run from either the second or third floor to the full height of the building terminating roughly three feet above the parapet. The exterior shafts are made of precast concrete on two sides and insulated metal panels on the other two sides.

Floor plans indicating current uses within the building are included in Attachment C of this report.

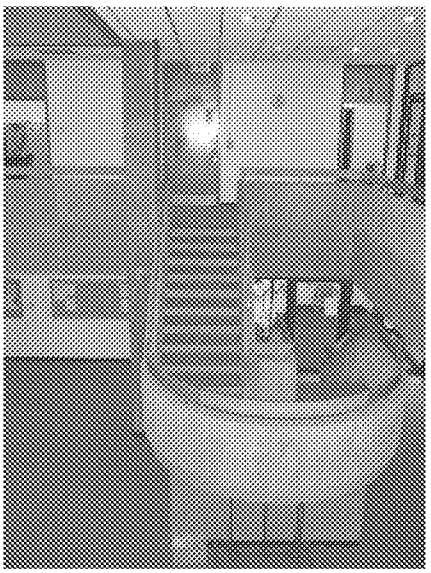
Tower Building Observations

- The roof membrane was replaced 17 to 21 years ago with a black EPDM system. In 2010 the electrical room roof was replaced with an off-white TPO system, covered with roofing pavers. The chiller plant roof was replaced in 2011 in conjunction with the Emergency HVAC Project, with an off-white TPO system.
- Water infiltration above the window heads is prevalent on west wing.

- It is not known if sealants around the original steel window frames have been replaced.
- Some sealant repairs/applications have been made on the exterior mechanical exhaust towers.
- Water infiltration has been observed in all four egress stair wells.
- Water infiltration exists around the skylights at the Food and Drug wing.
- The windows are single glazed steel frame units.
- No subsurface water infiltration has been experienced, except for the basement electrical room, which was waterproofed in conjunction with the Emergency Electrical Project in 2010.

2.3.4.a ***Architecture.*** In general the building finishes consist of the following:

- ***Floors***
  - Carpet
  - Vinyl Tile
  - Sealed Concrete



- ***Walls***
  - Exposed concrete
  - Painted Concrete
  - Painted Gypsum Board
  - Painted CMU
- ***Windows***
  - Double glazed, aluminum framed
- ***Ceiling***
  - Exposed Structure
  - Acoustical Ceiling Tile
  - Painted Gypsum Board

The building has some positive attributes, which could be enhanced in future renovations. These include:

- 11' Module conducive to contemporary lab planning
- Flexible stair egress
- Single interior column line
- Exterior duct chases accessible for retrofit
- Shallow floor plate depth allows maximum interior light penetration, should existing window areas be enlarged.

Key deficiencies of the building include:

- Limited BSL-3 capability
- ADA Compliance Issues
- Limited daylight infiltration, due to narrow strip windows
- Tired Finishes
- Low floor to floor height

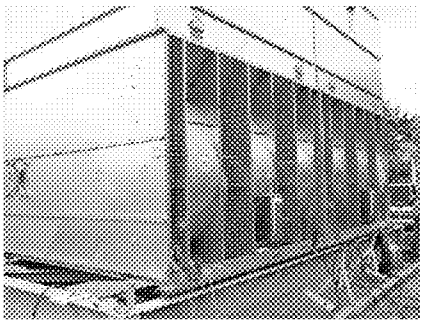
2.3.4.b ***Structure.*** The Tower Building structure is founded on spread footings and is constructed of mildly reinforced cast-in-place concrete floors (waffle slab construction), walls, and columns. Shear walls within the stairs and elevator core area are used for stability. The lower levels from basement to roof of second floor make up the larger footprint of this building, whereas the twin tower portion runs from the 3rd floor to the 8th floor with the roof of the 8th picking up the stair tower and main penthouse structures. The tower and lower levels do not employ any expansion joints.

The Boiler plant, located tight to and on the northwest corner of the Tower Building complex, is founded on spread footings and is constructed of a combination of mildly reinforced cast-in-place concrete walls and floor systems with precast single tees and columns for the roof structure. The full height cast-in-place concrete walls provide stability against lateral loading. The stack is of cast-in-place construction with a clay brick masonry liner. The stack is self-supporting on its own foundation which is isolated from the building foundations by one-inch wide joints. The main boiler gallery floor-to-roof is a clear span of 30 feet with various hanging steel catwalks serving the equipment.

2.3.4.c ***HVAC.*** The HVAC system had been comprised mostly of original equipment to the building. The boilers are oversized and have redundancy as it was originally designed to support a planned second tower building. Most of the equipment in the plant has been cycled for even use throughout the years, essentially being used a third of the time; however the age of the equipment poses a major concern if it were to be reused for a major renovation. A study to replace or refit the boilers is currently in progress.

In the summer of 2010, the cooling system performance had degraded to the point where vital laboratory equipment had to be shut down due to rising temperatures within the building, in order to avoid health and safety issues for personnel working within these labs and damaging the equipment. This situation led to an Emergency HVAC Improvement project, which has been completed and provides:

- Three – 600 ton centrifugal chillers and appurtenances, replacing existing;
- Two – cooling towers, replacing existing (a third existing cooling tower has been reused);



- Penthouse AHU supply fan replacement;
- Rebalancing of the exhaust air system;
- VAV box replacement on floors 3, 7, 8 and lab suite 404;
- Damper / Valve control / per wing on floors 4, 5, 6, & 8;
- Abatement as required;
- HEPA filtered exhaust for selected lab suites;
- New ceiling system in areas receiving new VAVs; and
- Complete DDC Control System.

The Emergency HVAC project focused on upgrading conditioned air delivery and select lab exhaust systems. The VAV boxes and duct distribution system in the remainder of the building will be addressed in future renovations.

Upon completion of the new supply and exhaust air handlers, it became apparent that the distribution ductwork is seriously degraded and in need of replacement, and may not allow the system to function at its capacity.

2.3.4.d ***Electrical.*** The electrical system in the tower building had been installed originally in 1970 to serve only the tower building. Over the years due to its design of almost 100% standby power availability the services for the Biologics and Stable building had been added to this service. In 2008 the Biologics and Stable buildings were provided with their own utility and generator services allowing for growth and modifications within the Tower building.

Beginning in 2009, an emergency electrical project commenced to improve primary and stand-by power distribution to the Tower building. Similar to the Biologics and Stable buildings, the new utility switchgear, and generators were installed in a pre-fabricated structure.

Completed in the Summer of 2011, this project provided:

- New electrical distribution switchgear in the existing Tower Building.
- New utility & generator switchgear in a new pre-fabricated enclosure.
- Four new back-up/standby power generators in a new pre-fabricated enclosure.
- New generator paralleling switchboard in a new pre-fabricated enclosure.
- A new roof above the existing switchgear room to make the room weather tight, and ready to accept new equipment.

The transformer is sized to accommodate existing load and anticipated growth in the Tower Building. Each service transformer has the capacity to support the full 3200-amperes @480Y/277-volt from the 2500kVA transformers, in a single ended condition.

Four (4) 800kW/1000kVA diesel generators are located in an acoustical weatherproof enclosure. Each generator has its own sub-base fuel tank. The generators are arranged in pairs with an output breaker from each pair serving as the emergency input to the two utility switchboards.

New switchboard sections have been installed in the former generator room. The existing conduits feeding the original switchboard have been connected to a slice box within the electrical room for connection to the switch board.

The Emergency Electrical project addressed the primary electrical service to the building, local power panels and potentially significant distribution issues remain to be addressed.

2.3.4.e ***Elevators.*** The Tower building has four elevators:

- Two passenger elevators
- Freight Elevator (Servicing Basement & 1st Floor only)
- Freight Elevator (Servicing Basement through Penthouse)

The elevator controls and finishes are original to the building, and are plagued by chronic repair issues. Replacement of the controllers is recommended as a priority project.

2.3.4.f ***Plumbing/FP.*** The fire protection system serving the tower building including the power plant is comprised of diesel driven fire pump and accessories located in a free-standing structure. The fire pump was installed in 2007, along with building sprinklers, and appears to be in excellent condition.

The plumbing systems serving the tower building including the power plant are comprised of domestic hot and cold water, sanitary waste and vent, acid waste and vent, compressed gases, natural gas, RODI and Kitchen waste systems. The majority of the systems with the exception of the medical air compressors and RODI systems are original to the building and are in fair to poor condition. The current lab waste and sanitary waste systems are separate within the building and are combined at manholes exterior to the building. There is no acid waste management system in place for the Tower Building.

2.3.5 Biologic Building

Biologic Building Overview

A two story "L" shaped building, the original building of this complex was constructed circa 1904 with two subsequent additions; the first being to the north and constructed circa 1926, the second to the east and constructed circa 1946 with a second story and penthouse added circa 1956. The predominate exterior material is brick with punched windows. The original building has a slate hip roof while the two additions have flat roofs.

Biologic Building Observations

- Remedial roof repairs at membrane seams and flashings were accomplished on the east wing in the fall of 2007.
- Roof access bulkhead on north wing roof has previously been problematic – especially with melting slush, however this is not currently a problem.
- Light to moderate brick spalling. This is most severe on the east wing with some additional occurrences on portions of the north wing. The south and east elevations of the east wing seem to have a higher percentage of spalled brick, while the north elevations have somewhat less. The north wing exhibits some areas of spalled brick but not as predominate as the east wing. As a general observation, approximately 25% to 30% of the total brick wall surface area for the

entire building could be affected.

- Brick mortar joints are deteriorating. It was suggested that water infiltration on the interior horsehair plaster walls of the southwest portion of the building has been observed with a red tint which may be from the brick. In addition, there is mortar joint deterioration predominately on the east and north wings of the building. The more severe areas can be observed on the south and east elevations of the east wing, and the east and north elevations of the north wing along with portions of the west elevation, north wing. As a general observation, approximately 40% to 45% of the total mortar joint wall surface area for the entire building could be affected.
- No subsurface water infiltration is exhibited in basement areas.
- Peeling ceiling and wall paint are likely evidence of water infiltration damage.
- Water infiltration at the interior window jambs is an ongoing problem at the north wing.
- There are portions of the upper wall areas where the corners of the building are deteriorating to the point of an impending wall failure. This is observed at the north wing, northeast and northwest corners near the parapet, and the east wing, southeast corner near the parapet.
- Rusting relieving angles at window and door heads.
- Sealant deterioration at window and door relieving angles.
- Windows are aluminum frame with insulating glass.
- Extensive damage to sheetrock jambs at window sills of the north wing.
- Cracking plaster at upper floor wall surfaces, north wing.
- Wood fascia board at roof will not hold paint and paint is peeling at underside of the roof overhang.
- Mortar or sealant missing at precast concrete belt course joints.

- Brick joint cracking at corners of building above foundation wall.
- Exterior wood door frame deterioration, paint peeling and sealant failure.
- The slate roof exhibits several areas of broken slates, with metal hip flashing in need of repair.

2.3.5.a ***Structure.*** The Biologic Building is a two-story "L" shaped structure, just to the west of the Tower Building, with an occupied basement, first and second floors. The original structure of approximately 45-foot square floor plan appears to be founded on spread footings with a superstructure constructed of masonry bearing walls and concrete encased steel beams supporting cast-in-place concrete floors. The roof of the original building is a wood framed truncated hip roof. The newer additions to the north and east also provide three floors (basement, 1st, 2nd), supported by masonry bearing walls and cast-in-place floors. The flat roof is heavily occupied with mechanical equipment. Each of the newer additions employs wood roof trusses or wood rafters for support of the roof. Lateral stability is provided by exterior and interior masonry walls.

2.3.5.b ***HVAC.*** The HVAC system in this building is a mix of different systems that were specifically designed for individual lab processes or requirements. Some of the equipment is out of service due to processes being moved to the Mattapan facility. Depending on what the future space is used for, some of this equipment may be able to be reused. The units should be decontaminated as required prior to being re-used.

These conditions may change subject to improvements in the power plant and related systems.

2.3.5.c ***Electrical.*** The existing electrical infrastructure campus was overloaded. In 2008, an emergency electrical project to address load management provided the Biologics building and the Stable building with their own stand-alone utility and generators, separated from the Tower building which had previously served all three buildings. The work included:

- New electrical distribution switchgear.
- New utility & generator switchgear in a new pre-fabricated enclosure.
- Two new back-up/standby power generators in a new pre-fabricated enclosure.

- New generator paralleling switchboard in a new pre-fabricated enclosure.

The project installed two new utility transformers located on the west side of the campus to serve the new normal/standby switchgear. The transformer and generators were sized to accommodate existing load and anticipated growth at the Biologics and Stable buildings, plus redundancy for all utility/standby feeds for the greatest possible reliability. The utility provided (2) 2000kVA transformers. Each service has the capability of providing the full 2500-amperes @480Y/277-volt. The switchgear was installed in a prefabricated exterior weatherproof enclosure.

The primary distribution for NStar included the installation of looped primary conduit system; the cabling was completed in conjunction with the emergency electrical project for the Tower building, and was completed in summer 2011.

The generator system consists of two 800kW generators to provide redundancy on the emergency side of the switchgear.

The switchgear on the west side of the campus has three output feeders, one 400-ampere feeder to serve the Stable building and two 2500-ampere feeders to serve the Biologics building. Initially each feeder for the Biologics building has a trip setting of only 1600-amperes due to current loading requirements, but it will have the capability of providing the full 2500-amperes @480Y/277-volt in the future.

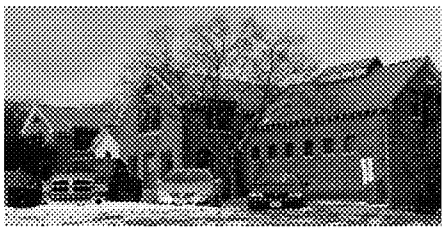
The 2500-ampere feeds to the Biologics building terminates in a weatherproof double ended switchboard with a main-tie-main arrangement and is located at the northeast corner of the Bio-lab building. From that point the (5) active feeders were reserved from this new switchgear.

2.3.5.d ***Plumbing/FP.*** The fire protection system serving the Biologics Building is comprised of a single 4" underground service with a single check valve, gate valve and main alarm check valve located in the basement. It appears that the alarm check is original to the building and appears to be in poor condition. The service is located in the basement electric room which is a code violation and should be addressed as soon as possible.

The plumbing systems serving the Biologics Building are comprised of domestic hot and cold water, sanitary waste and vent, acid waste and vent, acid neutralizing system, compressed gases, natural gas, water for injection and Laboratory kill tank. Based on the age of the facility, the sanitary and vent systems are well past their life expectancy and should be inspected prior to future considerations. The overall plumbing systems for the Biologics Building are in fair to good shape with the exception of the vacuum system which is past its life expectancy and has no back-up to system. The acid waste neutralizing system is fairly new and appears to be in good condition.

2.3.6 Stable Building

Stable Building



A two story building set into the hillside that was originally constructed in two phases; the east portion circa 1904 and the west portion circa 1926. Two egress stair towers and an entrance vestibule were added circa 1994 to the north of the stable building as part of a significant renovation. The older building has a slate roof with three skylights while the newer stair towers and entrance vestibule have standing seam metal roofs.

Stable Building Observations

- Skylight leakage is an ongoing problem.
- Aluminum window frames with insulating glass were installed in the early 1990's and are in satisfactory condition along with the window sealants.
- Coal hole below grade did have a leakage problem but is now capped off at the exterior grade with no evidence of water infiltration to date.
- Extensive water damage is observed to portions of the ceiling and walls at the skylights. Blistering and peeling paint, stained wall surfaces and a bucket positioned to collect water.
- There is some mortar deterioration of the brick walls, approximately 5% to 10% of the mortar joints for the entire building require repair.
- Peeling paint on the wood cornice trim.
- Broken roof slates at the roof edge and to some extent in the overall field of the roof area.

- Skylight members are showing signs of rusting.
- Cracked mortar joints at the precast concrete window sill ends.
- Concrete foundation cracks at the west end roll up door.
- Rusting roll up door and frame members.
- Northwest corner brick-to-foundation construction where demolition has occurred shows open mortar joints and deteriorating condition at the top of the foundation wall.
- Brick and mortar deterioration at north window jamb/head condition.
- Rusting relieving angles – in one instance may be pushing brick wall outward at the relieving angle.
- Vertical sealant deterioration at expansion joint between the stair tower additions and the stable building.
- Wood and roofing trim at roof window "eyebrows" loose.

2.3.6.a ***Structure.*** The Stable Building is a long, two story rectangular structure with occupied basement for mechanical services, storage, and a service garage at the west end. The early structure occupies the east end and although no structural drawings are available, concrete and stone construction make up the foundations, floors of concrete and wood, and wood framed roof. Lateral stability is provided by the perimeter wall construction

2.3.6.b ***HVAC.*** The HVAC system in this building is comprised of a single air handling unit that is in fair condition and does not have spare capacity. The air handling unit and condensing unit could be reused in the case of a renovation; however the heating equipment appears to be in poor condition. The heat exchanger, pumps, condensate pumps, etc. should be replaced in the event of a renovation. These conditions may change subject to improvements in the power plant and related systems.

2.3.6.c ***Electrical.*** The 400-ampere feed to the Stable building terminates in the existing Main Distribution panel that currently serves the building.

2.3.6.d ***Plumbing/FP.*** The fire protection system serving the Stable Building is comprised of underground service and wet and dry alarm check valves that serve the building. The system was installed in 1996 and appears to be in excellent condition.

The plumbing systems serving the Stable Building are comprised of domestic hot and cold water, sanitary waste and vent and domestic hot water. Based on the age of the facility, the sanitary and vent systems are well past their life expectancy and should be inspected prior to future considerations. With the exception of the sanitary piping and vent systems, the plumbing systems for the Stable Building are in fair to good shape.

2.4 Program Overview

KlingStubbins conducted programming interviews and meetings with key project constituents to discern project requirements. Data was collected utilizing the following:

- Programming Forms
- Staff information based on input from users
- Storage information based on the "Storage Worksheet" forms which were submitted by the users.
- Program Summary information captures comprehensive space needs

The following terms have been utilized in our program development:

- Net Square Footage (NSF). The actual area of rooms and spaces which are assigned to specific uses, exclusive of walls.
- Departmental Gross Square Footage (DGSF). The total net assignable area in a department. For planning purposes, the NSF is multiplied by 1.3 to achieve DGSF. This factor is used for all groups: lab, non-lab, and shared spaces. The use of this factor accounts for circulation spaces within the department, including corridor spaces exclusively used within the department, and the floor area of walls within the department. This percentage is based KlingStubbins' extensive laboratory programming experience, and on benchmark information from other labs.
- Building Gross Square Footage (BGSF) this factor is required to allow for primary Core areas including building horizontal and vertical circulation, mechanical spaces, building service areas, restrooms, lobbies, and the exterior wall thickness. For planning purposes, the DGSF is multiplied by 1.7 to achieve BGSF.

2.4.1 Program Organization

The Massachusetts State Laboratory (MSL) includes functions for both the Department of Public Health (DPH) as well as the University of Massachusetts Medical School (UMMS). Below is a summary of key uses located on the MSL campus. For the current location of user groups, please refer to the building floor plans included in Attachments E, F, and G of this Document. Program requiremnts are detailed in Attachment A of this document. A campus organization chart, based on a September 9, 2011 user meeting, is included in Attachment B of this document.

2.4.2 Department of Public Health

Department of Public Health (DPH)

Currently there are five major departments reporting to DPH: the Bureau of Health Care Safety & Quality (BHCSQ, Program Code 5.1); the Bureau of Environmental Health (BEH, Program Code 4); the Bureau of Laboratory Sciences (BLS, Program Code 3); the Bureau of Administration (BA, Program Code 2.1); and the Bureau of Infectious Disease Prevention Response & Services (BIDPRS, Program Code 1).

In addition, there is also a Human Resources function serving all these areas which reports separately to the Executive Office of Health & Human Services (EOHHS, Program Code 8.1).

Each of these major departments is subdivided into more specific functions. For example, at DPH the Drug Control Program reports BHCSQ and both the Food Protection Program and Radiation Control report to BEH. The largest department with the most reporting relationships is the Bureau of Laboratory Sciences (BLS), which comprises Management & Client Services (MCS); Microbiology; Molecular Diagnostics & Virology (MDV); Analytical Chemistry (AC);and Quality Assurance and IT. The Bureau of Infectious Disease Prevention Response & Services is another large department, comprising the following sections: STD Prevention; HIV/AIDS Surveillance; Integrated Surveillance (ISIS); IT Informatics; Epidemiology and Immunization (EI); Refugee & Immigrant Health (RIH); and TB Prevention & Control (TBPC).

2.4.2.a ***Bureau of Health Care Safety and Quality (BHCSQ)***

The Drug Control Program (DCP) is a single division of BHCSQ, and promotes access to safe and effective pharmaceutical care services in Massachusetts and protects consumers against fraud, deception and unsafe practices in the distribution, handling and use of pharmaceuticals and medical devices.

The Program has statutory responsibility to set standards for the control of prescribing, dispensing and administration of pharmaceuticals by health care providers as well as distribution of pharmaceuticals by health care facilities (e.g. hospitals, clinics, long-term care) and other entities (e.g. manufacturers, distributors, community-based programs). The DCP undertakes initiatives to promote effective security and accountability measures and to prevent theft, tampering, misuse and abuse of drugs.

The Division has a locked Drug Evidence Room where law enforcement representatives regularly bring in confiscated evidence for testing. Key staff meet with law enforcement officials.

BHCSQ currently has 23 office-based employees. The Dug Control offices are located on the second floor, south side of the Tower Building.

2.4.2.b ***Bureau of Environmental Health (BEH)***

The Bureau of Environmental Health Food and Drug program consists of two Divisions, Food Protection Program and Radiation Control. BEH currently has 25 office-based and 3 lab-based employees.

- **The Food Protection Program (FPP)**. Ensures the safety of all food products in Massachusetts in order to prevent food borne illness and terror-related contamination of food supplies. FPP is mandated to promulgate retail and wholesale food manufacturing, distribution and storage regulations and to license, inspect and carry out enforcement action as necessary for wholesale food manufacturing and distribution facilities.

  The Food Inspectors primarily work in the field, coming into the office mainly

for meetings and to write reports. The FPP offices are located on the first floor, west side of the Tower building.

- **Radiation Control Program**. Located in the basement of the Tower building, the lab analyzes and monitors potential sources of radiation in the New England region, including the nuclear power plant sites at Plymouth and Rowe Yankee in Massachusetts as well as Seabrook, New Hampshire. It also provides testing of environmental and materials samples, including water and soil, radiation wipes, air filters, crops and other vegetation, fish and shellfish, and food.

2.4.2.c ***Bureau of Laboratory Sciences***

The Bureau of Laboratory Sciences (BLS) comprises five lab groups: Management & Client Care Services, Quality Assurance and IT, Analytical Chemistry, Microbiology, and Molecular Diagnostics and Virology. The BLS currently has 30 office-based and 106 lab-based employees.

- **Management & Client Care Services (MCCS)**. The main component of MCCS is Central Lab Services, which in turn includes units for Glassware, Kits, Media Prep, and Specimen Receiving. Glassware provides and cleans laboratory ware used by the both the BLS/SLI labs and the Newborn Screening Lab. Media Prep manufactures microbiology media and lab testing reagents for BLS/SLI. Specimen Receiving handles the initial receipt and testing of specimens for BLS/SLI and Newborn Screening as well as dispensing specimen kits. MCCS is primarily located on the second floor, east side of the Tower building.
- **Quality Assurance & IT**. This group maintains regulatory compliance of the various laboratories for purposes of CLIA, CAP and FDA accreditation. In addition, IT, which is independent from UMMS and has its own staff, is charged with the maintenance and periodic upgrading of the IT equipment and software. The group is primarily located on the second floor of the Tower building, adjacent to the central core area.

- **Division of Analytical Chemistry**. Five lab groups comprise the Division of Analytical Chemistry; Childhood Lead Screening (CLS), the Drug Analysis Lab (DAL), the Environmental Chemistry Lab (ECL), the Chemical Terrorism Response Lab (CTRL), and the Biological Threat Lab (BTL). Office and Lab space is located on the third floor, plus the eighth floor, south side, west wing of the Tower building.
- **Microbiology**. The Division of Microbiology comprises eight lab groups, all located in the Tower building. Included in this division are the Bioterrorism Lab, the Sexually Transmitted Diseases (STD) lab, the HIV/Hepatitis lab, the Mycobacteriology (TB) lab, the Reference Laboratory, the Dairy lab, the Food/Enteric lab, and the Pulse Field Gel Electrophoresis (PFGE) lab. As a division, Microbiology processes more than 150,000 samples per year and produces some of its own revenue through the sale of specimen kits. Additional funding is provided by state and Federal grants. Office and lab space is located on the fourth floor of the Tower building.
- **Molecular Diagnostics and Virology**. MDV currently has a core staff, plus seasonal staff to handle Arbovirus detection. The six labs associated with MDV are considerably dispersed throughout the building and include Virus Serology (on the 7th & 8th floors); Virus Isolation (on the 8th floor); Molecular Diagnostics (on the 4th, 7th and 8th floors); the Rabies Lab (in the Basement and on the 7th floor); Biowatch (in the trailer, at Specimen Receiving, and on the 4th, 7th, and 8th floors); and Arbovirus Surveillance (in the trailer and on the 4th, 7th, and 8th floors). The staff for MDV require specialized training and some also need special vaccinations and security clearances. The Molecular Diagnostics lab also has a training function, supporting student rotations from UMMS and Fellows from the Center for Disease Control for periods of 1-2 years each.

2.4.2.d *Bureau of Administration (BA)*

The Bureau of Administration provides Purchasing & Accounting, Contract, Central Serivces, and Finance support to DHP divisions. BA currently has 12 office-based employees, located in suite 208 of the Tower building.

2.4.2.e ***Bureau of Infectious Disease Prevention Response & Services (BIDPRS)***

The Bureau of Infectious Disease Prevention Response & Services (BIDPRS) is comprised of seven divisions and programs. BIDPRS currently has 202 office-based employees.

- **Epidemiology & Immunization**. The Epidemiology Program helps protect the residents of the Commonwealth from foodborne illnesses, emerging infectious illnesses, and other communicable diseases. Major goals of the program include the prevention of rabies in humans and domestic animals, the surveillance of emerging and re-emerging infections, and interruption of transmission of communicable diseases. Office space is located on the fifth floor, east wing, of the Tower building.
- **HIV/AIDS Surveillance**. The HIV/AIDS Surveillance Program provides a comprehensive overview of the epidemic in order to support prevention and health service activities delivered by organizations. Epidemiologists are responsible for the collection, analysis, and interpretation of adult and pediatric HIV/AIDS case data. The program works collaboratively with others providing surveillance information and assisting with assessment of resource distribution. Office space is located on the fifth floor, west wing of the Tower building, plus some ancillary space on the second floor of the Tower building.
- **Integrated Surveillance (I.S.I.S.)**. ISIS provides a single point of contact for infectious disease reporting in Massachusetts and is responsible for data collection and other surveillance activities for approximately 80 reportable diseases. ISIS monitors infectious disease information in the Commonwealth in order to identify trends and guide policy decisions. ISIS provides oversight for surveillance and informatics initiatives that support the Bureau's epidemiological, and disease control and prevention efforts. ISIS office are located on the fifth floor, north side, west wing of the Tower building.
- **Refugee & Immigrant Health**. The Refugee and Immigrant Health Program controls communicable diseases among refugees and newly arrived immigrants. A Program of the Bureau of Communicable Disease Control, staff work to increase access to public health services for newcomers. Many refugees come from areas where disease control, diagnosis and treatment are lacking. The program's office space is located on the first floor of the

Stable building.

- **STD Prevention**. The Division of Sexually Transmitted Disease (STD) Prevention is focussed on the reduction and prevention of sexually transmitted diseases, including HIV infections. Critical to achieving this goal is the integration of the work of the Disease Intervention Specialists (DIS), who are instrumental in preventing further transmission of STD's and HIV infection through their client education and partner notification activities, with a network of Sexually Transmitted Disease clinics and private providers. The STD offices are located on the second floor of the Stable building.
- **TB Prevention & Control**. The Division of Tuberculosis Prevention and Control seeks to reduce the incidence of tuberculosis (TB) through surveillance, education and clinical services delivered within a collaborative system. Services involve a cooperative working relationship with local boards of health and other community agencies, to ensure that needs are met and to build community capacity to respond to TB-related health issues. TB offices are located on the first floor of the Stable building.

The BIDPRS tracks 85 diseases and conditions and more than 70 laboratory findings of infectious diseases reportable by law. They also train medical students, including public health masters candidates and nursing students, etc.

2.4.3 UMMS University of Massachusetts Medical School (UMMS)

There are two major departments reporting to UMMS: Biologic Laboratories (Program Code 7.4), which manufactures vaccines and mainitains the Tower basement vivarium; and the UMMS Administration, which oversees five distinct groups. The groups reporting to UMMS Administration include: Jamaica Plain Information Services (JP IT, Program Code 7.2); Facilities; MSLR Supra National TB Reference Laboratory (Program Code 7.5).; Environmental Health & Safety; and the New England Newborn Screening (NENS, Program Code 7.3).

2.4.3.a ***Biologics***. The Massachusetts Biologic Laboratories (MBL) develops and manufactures vaccines and other biologic products, primarily for the state to distribute through its Universal Childhood Immunization Program.

The labs also work to translate basic research ideas into new vaccines and plasma products for commercialization and distribution nationwide. The MBL has enabled Massachusetts as a leader in immunization, has afforded the state greater access to needed vaccines, and has saved the state millions by relying less on commercially produced vaccines.

The MBL occupies the space in the Basement and eighth floor of the Tower Building, plus full occupancy of the Biologics building.

2.4.3.b ***Jamaica Plain Information Technology (JP IT)***. Jamaica Plain Technology (JP IT) provides Information Technology service to the UMass Medical Center administration and the Newborn Screening Program, which includes supporting the IT network, server access, and security. It also provides desktop support to Biologics. The system covers common service applications such as glassware ordering, maintenance requests, stockroom ordering, the building employee database, video security, internet access, plus tel/com for the entire Mass. State Lab facility.

The JP IT group is located in Suite 102 of the Tower Bulding.

2.4.3.c ***Facilities (Campus Operations)***. Campus Operations handles maintenance and overall building operations issues at the Mass. State Lab complex including: facilities management, parking, security, meeting space, and accessibility.

The Facilities group is primarily located in the basement of the Tower building.

2.4.3.d ***MSLR Supra National TB lab***. The Massachusetts Supranational TB Reference Laboratory (MSRL) is part of an international effort to contain tuberculosis and its resistance to drugs. It is one of a select group of facilities designated by the World Health Organization as a supranational reference laboratory.

The MSRL provides technical assistance and technology transfer to developing countries, while also developing and participating in basic and operational research. Activities include development of quality assurance systems, technical assistance, epidemiological studies of TB, drug potency testing, and training in diagnostic methods and quality assurance.

The MSRL Lab is located in the eighth floor, west wing of the Tower building; administrative offices are located on the second floor, north side of the Tower building.

2.4.3.e ***EH&S Environmental Health & Safety***. Environmental Health & Safety (EHS) reports to the state Director currently located in Worcester. The two main clients for EHS are Biologics and the Bureau of Lab Sciences, but there is also some involvement with staff in Physical Plant. EHS meets periodically with various regulators.

EHS is located in Suite 205, on the second floor of the Tower building.

2.4.3.f ***New England Newborn Screening (NENS)***. The New England Newborn Screening (NENS) program is engaged in the diagnosis of newborn infants in five general areas of disorders: sickle cell, endocrine, metabolic, immune and molecular. The program is a fee-for-service operation serving all of Massachusetts, New England, Vermont and parts of Pennsylvania, as well as international clients.

The NENS program is spatially organized into administrative and laboratories functions. With the exception of the molecular lab group, the analytical processes are not sensitive to cross-contamination.

NENS is located on the sixth floor of the Tower building.

2.4.4 Tower Building Tabular Program Summary

In the second quarter 2011, KlingStubbins surveyed the existing Tower Building to identify changes in occupany since the 2009 program. The complete program is included in Attachment A of this document. FTE counts are derived from the 2009 "no growth" program scenario, and require verification by users. Based on a limited sample of current FTE data, the trend suggests a 10-12% decrease in building staff.

The Tower program is divided into eleven groupings:

- 1.0 Bureau of Infectious Disease Prevention Response & Services (BIDPRS)
- 2.0 Finance and Operations
- 3.0 Bureau of Laboratory Sciences (BLS)
- 4,0 Bureau of Environmental Health (BEH)
- 5.0 Bureau of Health Care Safety & Quality (BHSCQ)
- 6.0 Bureau of Environmental Health & Health Care Safety & Quality (BEHSCQ)
- 7.0 University of Massachusetts Medical School (UMMS)
- 8.0 Executive Office of Health & Human Services (EOHHS)
- 9.0 Tenant Space (National Lab Training Network)
- 10.0 Common Areas
- 11.0 Vacant Space (May 2011)

In addition, updated floor plans are included in Attachment E.

Tower Building Program Summary Chart:

Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Administration	BIDPRS	9	1,180	750	120	150	150	150	1,450	1,050
1.2	Epidemiology and Immunization Admin	BIDPRS	28	2,340	1,641	120	120	100	100	2,560	1,861
1.3	Immunization Program	BIDPRS	36	3,320	2,034	0	0	310	310	3,630	2,344
1.4	HIV / AIDs Surveillance	BIDPRS	20	1,490	1,104	0	0	940	940	2,430	2,044
1.5	Information Technology and Informatics	BIDPRS	10	720	420	0	0	0	0	720	420
1.6	Integrated Surveillance	BIDPRS	24	2,260	1,086	0	0	0	0	2,260	1,086
2.1	Finance and Operations	BA	11	1,470	756	0	0	0	0	1,470	756
3.1	Administration	BLS	3	550	420	0	0	150	150	700	570
3.2	Analytical Chemistry	BLS	33	830	699	6,040	4,004	1,100	1,100	7,970	5,803
3.3	Laboratory Response & Communication	BLS	15	740	630	920	1,078	220	220	1,880	1,928
3.4	Management and Client Services	BLS	11	590	373	2,270	1,916	1,030	1,030	3,890	3,319
3.5	Microbiology	BLS	23	920	690	2,260	1,848	1,020	1,020	4,200	3,558
3.6	HIV / Hepatitis Lab	BLS	11	290	126	1,110	1,232	370	370	1,770	1,728
3.7	Mycobacteriology (TB) Lab	BLS	16	600	486	1,860	1,540	480	480	2,940	2,506
3.8	Food/Enteric Lab, PFGE Lab and Dairy Lab	BLS	16	70	63	2,760	2,310	0	0	2,830	2,373
3.9	Molecular Diagnostics and Virology	BLS	38	1,030	762	2,960	4,312	810	810	4,800	5,884
3.10	Virology- Virus Isolation Lab and Virus Serology Lab	BLS	9	310	168	1,330	770	250	250	1,890	1,188
3.11	Quality Assurance and IT	BLS	13	705	486	480	616	730	730	1,915	1,832
4.1	Food Protection Program	BEH	28	2,250	1,176	0	0	0	0	2,250	1,176
4.2	Radiation Control Program	BEH	8	330	168	670	616	130	130	1,130	914
5.1	Drug Control Program	BHCSQ	14	760	486	680	770	330	330	1,770	1,586
6.1	Food & Drug Admin, Licensing, & Shared Spaces	BEHHCSQ	11	1,380	669	0	0	280	280	1,660	949
7.1	JP Campus Operation	UMMS	6	840	588	0	0	30	30	870	618
7.2	JP IT	UMMS	6	990	435	0	0	400	400	1,390	835
7.3	New England Newborn Screening	UMMS	53	3,690	2,349	4,410	3,638	900	900	9,000	6,887
7.4	Biologics	UMMS	5	260	42	2,120	2,138	2,040	2,040	4,420	4,220
7.5	Massachusetts Supra National TB Reference	UMMS	9	690	408	420	462	0	0	1,110	870
8.1	Human Resources	EOHHS	1	160	150	0	0	0	0	160	150
9.1	National Lab Training Network	Tenant	2	190	183	0	0	100	100	290	283
10.1	Common Areas	UMMS	20	1,500	1,080	4,400	4,400	18,780	18,780	24,680	24,260
11.1	May 2011 Vacant Space			1,690	0	3,220	0	1,070	0	5,980	0
											0
	Total Net SF		**489**	**34,145**	**20,428**	**38,150**	**31,920**	**31,720**	**30,650**	**104,015**	**82,998**

2.4.5 Biologics Building Tabular Program Summary

In the second quarter 2011, KlingStubbins surveyed the existing Biologics Building to identify changes in occupany since the 2009 program. The complete program is included in Attachment A of this document. In addition, updated floor plans are included in Attachment F.

The Biologics program is comprised of one grouping, Epidemiology and Immunization, a sub-group of the UMMS MBL.

Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square Foot
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Epidemiology and Immunization	UMMS	TBD	3,210	3,210	5,030	5,030	11,510	11,510	19,750	19,750
											0
											0
											0
	Total Net SF			**3,210**	**3,210**	**5,030**	**5,030**	**11,510**	**11,510**	**19,750**	**19,750**

2.4.6 Stable Building Tabular Program Summary

In the second quarter 2011, KlingStubbins surveyed the existing Stable Building to identify changes in occupany since the 2009 program. The complete program is included in Attachment A of this document. In addition, updated floor plans are included in Attachment G.

The Stable program is comprised of one grouping with six categories, each is a sub-group of the Bureau of Infectious Disease Prevention Response & Services (BIDPRS).

Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square Feet
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Administration	BIDPRS	TBD	180	180	0	0	0	0	180	180
1.2	Epidemiology and Immunization Admin	BIDPRS	TBD	410	410	0	0	10	10	420	420
1.3	STD Prevention	BIDPRS	TBD	1,850	1,850	0	0	60	60	1,910	1,910
1.4	Refugee & Immigrant Health	BIDPRS	TBD	920	920	570	570	20	20	1,510	1,510
1.5	TB Pevention & Control	BIDPRS	TBD	1,720	1,720	420	420	130	130	2,270	2,270
1.6	Common Areas	BIDPRS	TBD	0	0	0	0	2,480	2,480	2,480	2,480
	Total Net SF			**5,080**	**5,080**	**990**	**990**	**2,700**	**2,700**	**8,770**	**8,770**

2.5 Tower Building Program Analysis

2.5.1 Benchmarking Data

In concert with the programming and building assessment at the Massachusetts State Laboratory (MSL), a benchmarking survey was also conducted for the 2008 Draft Study (Refer to Volume 2, Book 6). The survey provided a context for assessing a reasonable range of program expectations when compared to peer institutions. Ten facilities from across the country were included in the survey, selected based upon recommendations from the Bureau of Lab Sciences.

The MSL campus includes large administrative programs that none of the other peer institutions have, such as the Bureau of Infectious Disease Prevention Response & Services, Drug Control, and the Food Protection program.

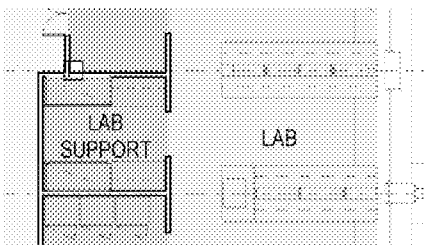
The average staff complement of the surveyed institutions was 301 total FTEs (687 gross square feet per staff).

A closer look at staffing patterns reveals that, on average, 56% of all staff is assigned to lab functions, 25% are assigned to support functions, and 19% are assigned to administrative functions. Compare these figures to the proposed staffing at the MSL, which are as follows: 32% of all staff is assigned to lab functions, 8% are assigned to support functions, and 60% are assigned to administrative functions.

A review of the types of labs included indicates that there is remarkable consistency among the peer institutions. Of the 18 standard labs listed, 14 are included at each location, with the four exceptions being Dairy, Biowatch, Childhood Lead Screening, and Drug Analysis. Yet all of these four are performed at the MSL, which indicates that it is has the most comprehensive standard test list of any institution noted.

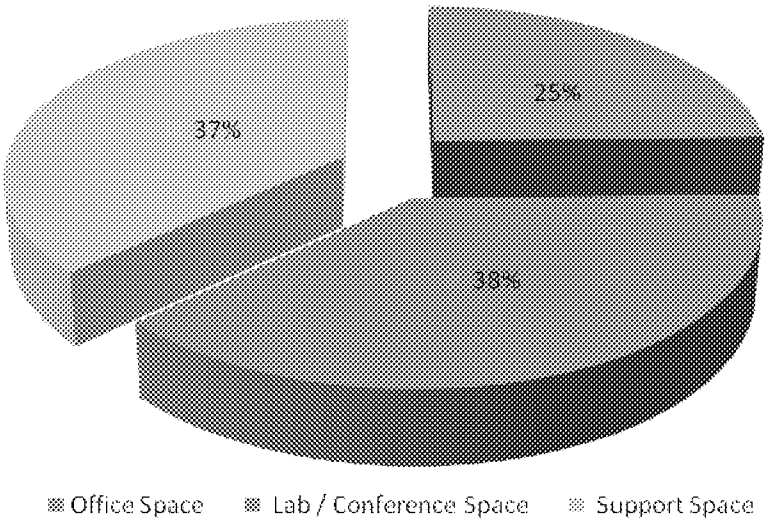
2.5.2 Program Analysis

A series of user meetings and review by DCAM has established basic planning principles for the office and laboratory areas that include:



- 220 NSF Large Office
- 150 NSF Medium Office
- 120 NSF Small Office
- 63 NSF Large Workstation
- 42 NSF Medium Workstation
- 36 NSF Small Workstation
- 154 NSF per lab-based FTE.
- 11'-0" lab planning module.
- Flex Lab Modules are 11'-0" x 28'-0" (308 SF).
- Flex Lab Benches have 26 LF per module.
- Support Zone Modules are 11-0" x 11'-0" (121 SF), larger support area needs will be accommodated with multiple modules of 121 SF.
- Lab areas are generally planned to be 2/3 Flex Lab, and 1/3 Support Zone. Certain specialty labs, such as BSL-3 suites will have an alternate configuration.
- The Support Zone may be located either linearly along the open lab zone, or 'bookended' to accommodate user needs.
- Lab desks are to be located outside of the labs, provision will be made within the lab for 'just in time' data recording.
- An office zone for lab group personnel is to be provided adjacent to the lab space.

The program indicates that approximately 40% of the building will be utilized for laboratory functions, 25% office space, and the remainder for program support spaces and building services.



2.5.3 Campus Capacity

As shown in section 2.2 of this document, the total BGSF for the Tower building is 208,000 BGSF. Program information is provided in Net Square Feet, when a grossing factor of 1.80 is applied to the Tower Building program, approximately 150,000 BGSF is required to meet current spatial needs:

- Required BGSF 150,000 (Current program)
- Growth BGSF 0 (Not included)
- **Total needed BGSF 150,000**
- ***Available BGSF 208,000***
- **Capacity BGSF Surplus 58,000**

Therefore, it is anticipated that two floors of the Tower Building could be made available for renovation swing space or projected growth within the current campus capacity. As program needs emerge in greater detail, surpluses and deficiencies may exist in specific areas, and such items will be addressed through specific space and renovation planning.

2.6 Cost Information

Should a complete building renovation be undertaken, renovation costs will be subject to program needs and market conditions at the projected bid time. Currently, interior fit-up estimated construction costs for improvements are:

- Lab Renovation $350-400 per BGSF
- Office Renovation $200-250 per BGSF

Therefore assuming a typical Tower building floor plate is 17,000 BGSF, with an allocation of 60% laboratory and 40% office space, the estimated cost of a single floor renovation could be $4,930,000 - $5,780,000.

Note that the above costs do not include the following:

- Electrical infrastructure renovations ($6M-7M for remaining Tower Building)
- HVAC infrastructure renovations ($11M-13M for remaining Tower Building)
- Boiler Plant Improvements ($1.5M-5M)
- Install Remaining VAV Boxes ($2.2M)
- Refurbish elevators ($750K)
- Upgrade IT infrastructure ($500K)
- Other Core & Shell improvements (e.g. exterior enclosure or toilet rooms)

2.7 Diagnosis of Facility Problems, Needs, Constraints and Opportunities

2.7.1 Major Issues

The KlingStubbins study team has identified the following deficiencies which should be addressed in both near and long term renovation strategies:

- New gas line is required to facilitate pending boiler renovations.
- The building's ADA compliance to include at least one accessible public entrance, at least one accessible restroom, at least one accessible drinking fountain, if provided, and at least one accessible telephone, if provided.
- The IT, A/V and telecommunications infrastructure and systems require upgrade.
- The elevator controls are original to the building; the elevators are plagued by chronic need for repair, and frequently malfunction with passengers held in the elevator cab.
- For security purposes, the number of entries should be reduced and biometric entry technology and alarm systems added to certain labs.
- The number of BSL-3 labs should be increased (currently there is only one fully compliant BSL-3 lab on campus).
- A comprehensive Laboratory Information System (LIMS) should be considered.
- Adjacencies for many of the labs are problematic; contributing to inefficient work practices and process duplication.
- Lab procedures and protocols should be made more systematic to comply with commonly-accepted practices.
- Storage requirements, particularly with regard to supplies and specimens, can be more efficient.
- Current paper file storage requirements are quite extensive. Many files are not currently stored in an appropriate standard manner.
- Sizes of offices and workstations in the administrative and support areas are not standardized.
- Additional parking capacity is required on campus.

- Overall site security requires improvement.
- Appropriate landscaping will enhance the campus character.

2.7.2 Project Opportunities

Although the campus buildings are aged, the Tower building's robust construction warrants further exploration of renovation opportunities. Favorable existing conditions include:

- 11' Module is conducive to contemporary lab planning.
- Flexible stair egress could allow an alternate egress arrangement.
- Single interior column line could facilitate open planning.
- Exterior duct chases could be accessible from outside the building for retrofit.
- New electrical switchgear and standby power.
- New HVAC Chillers, Cooling Towers, and Supply Fans.

2.7.3 Project Constraints

Some constraints which must be addressed as renovation work continues includes:

- Locating appropriate swing space for renovation may be problematic.
- Need to address neighborhood concerns relative to renovation activities.
- Changes to BSL suites will likely require decontamination protocols.
- Limited construction staging area and construction personnel parking area available on site.
- The facility operates continuously on a 24/7 basis.
- The budget for potential improvements has not been established.

2.8 Attachments

The following Attachments are included in this report:

A Tabular Program

B Campus Organization Chart

C Site Plan

D Utility Site Plan

E Tower Building Floor Plans

F Biologics Building Floor Plans

G Stable Building Floor Plans

H Regulatory Review

I January 5, 2012 Workshop Summary

Attachment A

Tabular Program

1.0 Tower Building Summary

May 24, 2011

Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square Foot
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Administration	BIDPRS	9	1,180	750	120	150	150	150	1,450	1,050
1.2	Epidemiology and Immunization Admin	BIDPRS	28	2,340	1,641	120	120	100	100	2,560	1,861
1.3	Immunization Program	BIDPRS	36	3,320	2,034	0	0	310	310	3,630	2,344
1.4	HIV / AIDs Surveillance	BIDPRS	20	1,490	1,104	0	0	940	940	2,430	2,044
1.5	Information Technology and Informatics	BIDPRS	10	720	420	0	0	0	0	720	420
1.6	Integrated Surveillance	BIDPRS	24	2,260	1,086	0	0	0	0	2,260	1,086
2.1	Finance and Operations	BA	11	1,470	756	0	0	0	0	1,470	756
3.1	Administration	BLS	3	550	420	0	0	150	150	700	570
3.2	Analytical Chemistry	BLS	33	830	699	6,040	4,004	1,100	1,100	7,970	5,803
3.3	Laboratory Response & Communication	BLS	15	740	630	920	1,078	220	220	1,880	1,928
3.4	Management and Client Services	BLS	11	590	373	2,270	1,916	1,030	1,030	3,890	3,319
3.5	Microbiology	BLS	23	920	690	2,260	1,848	1,020	1,020	4,200	3,558
3.6	HIV / Hepatitis Lab	BLS	11	290	126	1,110	1,232	370	370	1,770	1,728
3.7	Mycobacteriology (TB) Lab	BLS	16	600	486	1,860	1,540	480	480	2,940	2,506
3.8	Food/Enteric Lab, PFGE Lab and Dairy Lab	BLS	16	70	63	2,760	2,310	0	0	2,830	2,373
3.9	Molecular Diagnostics and Virology	BLS	38	1,030	762	2,960	4,312	810	810	4,800	5,884
3.10	Virology- Virus Isolation Lab and Virus Serology Lab	BLS	9	310	168	1,330	770	250	250	1,890	1,188
3.11	Quality Assurance and IT	BLS	13	705	486	480	616	730	730	1,915	1,832
4.1	Food Protection Program	BEH	28	2,250	1,176	0	0	0	0	2,250	1,176
4.2	Radiation Control Program	BEH	8	330	168	670	616	130	130	1,130	914
5.1	Drug Control Program	BHCSQ	14	760	486	680	770	330	330	1,770	1,586
6.1	Food & Drug Admin, Licensing, & Shared Spaces	BEHHCSQ	11	1,380	669	0	0	280	280	1,660	949
7.1	JP Campus Operation	UMMS	6	840	588	0	0	30	30	870	618
7.2	JP IT	UMMS	6	990	435	0	0	400	400	1,390	835
7.3	New England Newborn Screening	UMMS	53	3,690	2,349	4,410	3,638	900	900	9,000	6,887
7.4	Biologics	UMMS	5	260	42	2,120	2,138	2,040	2,040	4,420	4,220
7.5	Massachusetts Supra National TB Reference	UMMS	9	690	408	420	462	0	0	1,110	870
8.1	Human Resources	EOHHS	1	160	150	0	0	0	0	160	150
9.1	National Lab Training Network	Tenant	2	190	183	0	0	100	100	290	283
10.1	Common Areas	UMMS	20	1,500	1,080	4,400	4,400	18,780	18,780	24,680	24,260
11.1	May 2011 Vacant Space			1,690	0	3,220	0	1,070	0	5,980	0
											0
	Total Net SF		**489**	**34,145**	**20,428**	**38,150**	**31,920**	**31,720**	**30,650**	**104,015**	**82,998**

Building Grossing Factor Check

Right-Sized NSF:

82,998

Estimated Grossing Factor:

1.80

Estimated Right-Size GSF Required:

149,396

Gross Building Area - Tower

Level	Area	
LEVEL B1	37,478	SF
LEVEL 1	36,165	SF
LEVEL 2	28,858	SF
LEVEL 3	17,097	SF
LEVEL 4	17,097	SF
LEVEL 5	17,097	SF
LEVEL 6	17,097	SF
LEVEL 7	17,097	SF
LEVEL 8	17,097	SF
PH	4,745	SF
Total GSF	209,828	SF

MSL Existing Space Program - Bioligics ***Building***

1.0 Biologics Building Summary

May 24, 2011

Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square Foot
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Epidemiology and Immunization	UMMS	TBD	3,210	3,210	5,030	5,030	11,510	11,510	19,750	19,750
											0

MSL Existing Space Program - Stable ***Building***

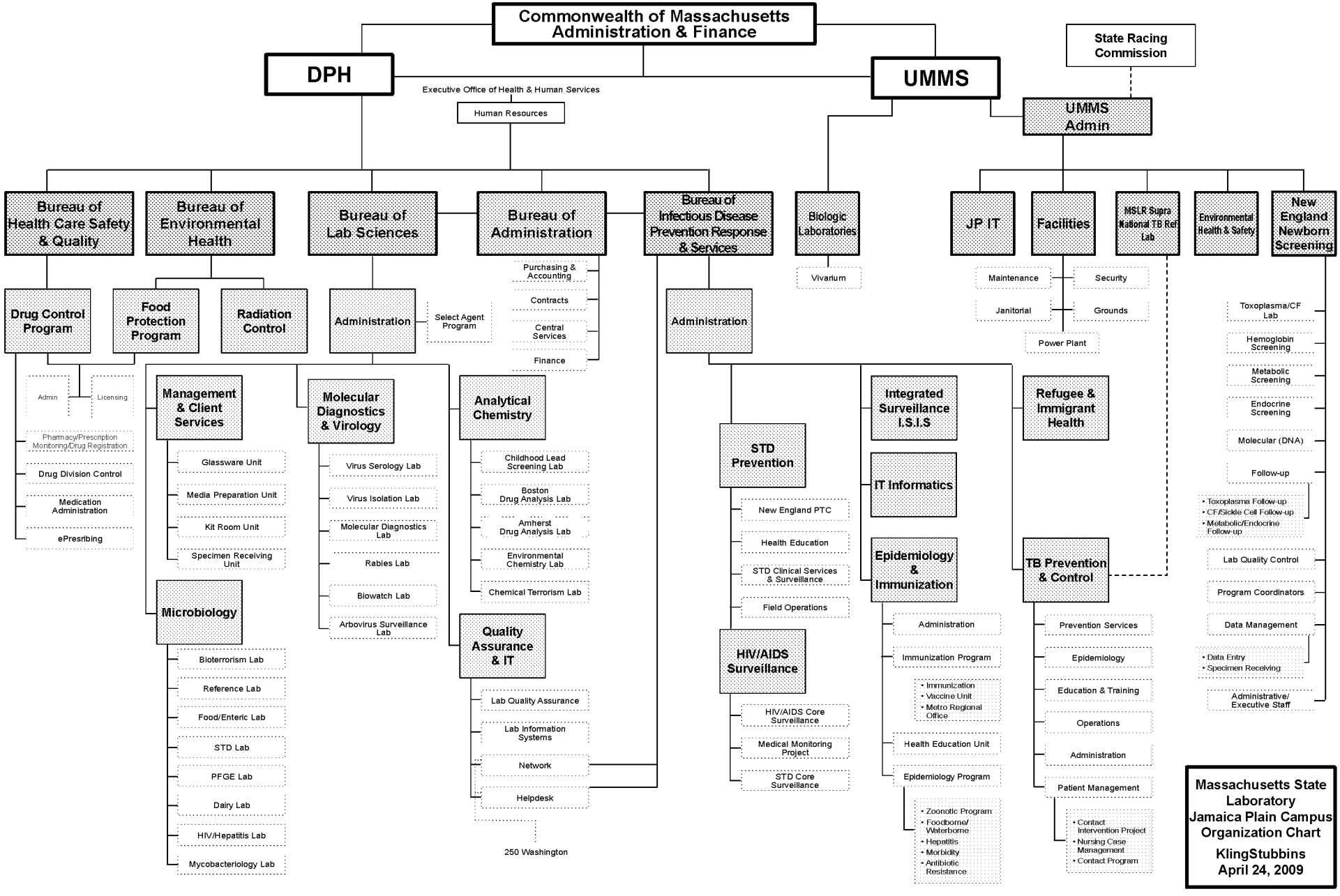
1.0 Stable Building Summary

May 24, 2011

Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square Feet
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Administration	BIDPRS	TBD	180	180	0	0	0	0	180	180
1.2	Epidemiology and Immunization Admin	BIDPRS	TBD	410	410	0	0	10	10	420	420
1.3	STD Prevention	BIDPRS	TBD	1,850	1,850	0	0	60	60	1,910	1,910
1.4	Refugee & Immigrant Health	BIDPRS	TBD	920	920	570	570	20	20	1,510	1,510
1.5	TB Pevention & Control	BIDPRS	TBD	1,720	1,720	420	420	130	130	2,270	2,270
1.6	Common Areas	BIDPRS	TBD	0	0	0	0	2,480	2,480	2,480	2,480
	Total Net SF			**5,080**	**5,080**	**990**	**990**	**2,700**	**2,700**	**8,770**	**8,770**

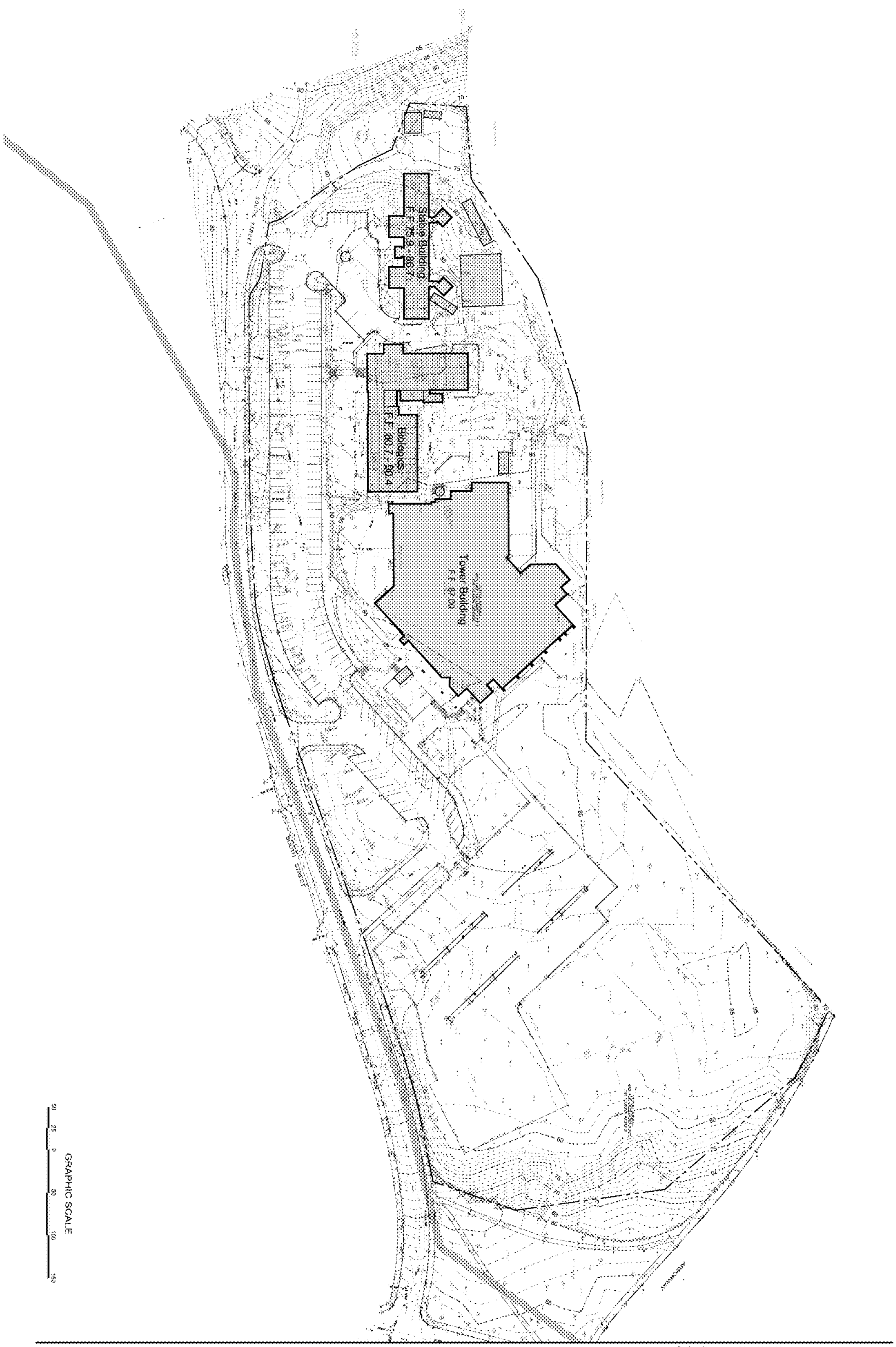
Attachment B

Campus Organization Chart



Attachment C

Site Plan



KLING STUBBINS

Survey Plan

Mass State Lab

302 South Street Jamaica Plain, MA

Project No.:	36.0707.00
DCAM No.:	CLIENT JOB NUMBER
Scale:	NTS
Date:	21.10.11

S - 1

Attachment D

Utility Site Plan

KLING STUBBINS

Diagrammatic Utility & Topography Plan

Moore Ruble Yudell

330 South Street Jamaica Plain, MA

Project No.:	12.079.01.A0
DCAM No.:	CLIENT FOR
	REQUIRED
Scale:	N.T.S.
Date:	2.21.01 11

S - 2

UTILITY LEGEND

- ELECTRIC
- WATER
- GAS
- TELEPHONE
- STORM DRAIN
- SANITARY SEWER

GRAPHIC SCALE

50 25 0 50 100 150

Tower Building
F.F. 82.00

Biologics
F.F. 80.7 - 90.4

Stable Building
F.F. 75.5 - 86.1

Attachment E

Tower Building Floor Plans

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

EXISTING CONDITIONS - GROUPS

DRAFT

KLINGSTUBBINS

TOWER - LEVEL B1 GROUPS

MASSACHUSETTS STATE LAB
Jamaica Plain, MA

Project No.: 30-0707-00
DCAM No.: DPH 0702 ST1

Scale:
Date: 05/24/11

TWR-B1G

5/27/2011 10:31:29 AM

KLIMB STUDIOS

TOWER - LEVEL 1 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

DCAM No.: DPH 0702 ST1

Scale:

Date: 05/24/11

5/27/2011 10:35:51 AM

TWR-01G

EXISTING CONDITIONS - GROUPS

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS.
KLIMB STUDIOS HAS CONDUCTED NO FIELD VERIFICATION ONLY.
PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

CORE
PRIMARY CIRCULATION
BUILDING COMMON AREA
JP: IT
SPECIMEN RECEIVING
BIDPRS ADMINISTRATION
IMMUNIZATION PROGRAM
FOOD PROTECTION PROGRAM
ADMINISTRATION & LICENSING
DRUG CONTROL PROGRAM
ELECTRICAL
MECHANICAL
JANITOR
RESTROOM
VACANT
DATA MANAGEMENT

KLIMB STUBBINS

TOWER - LEVEL 2 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

DCAM No.: DPH 0702 ST1

Scale:

Date: 05/24/11

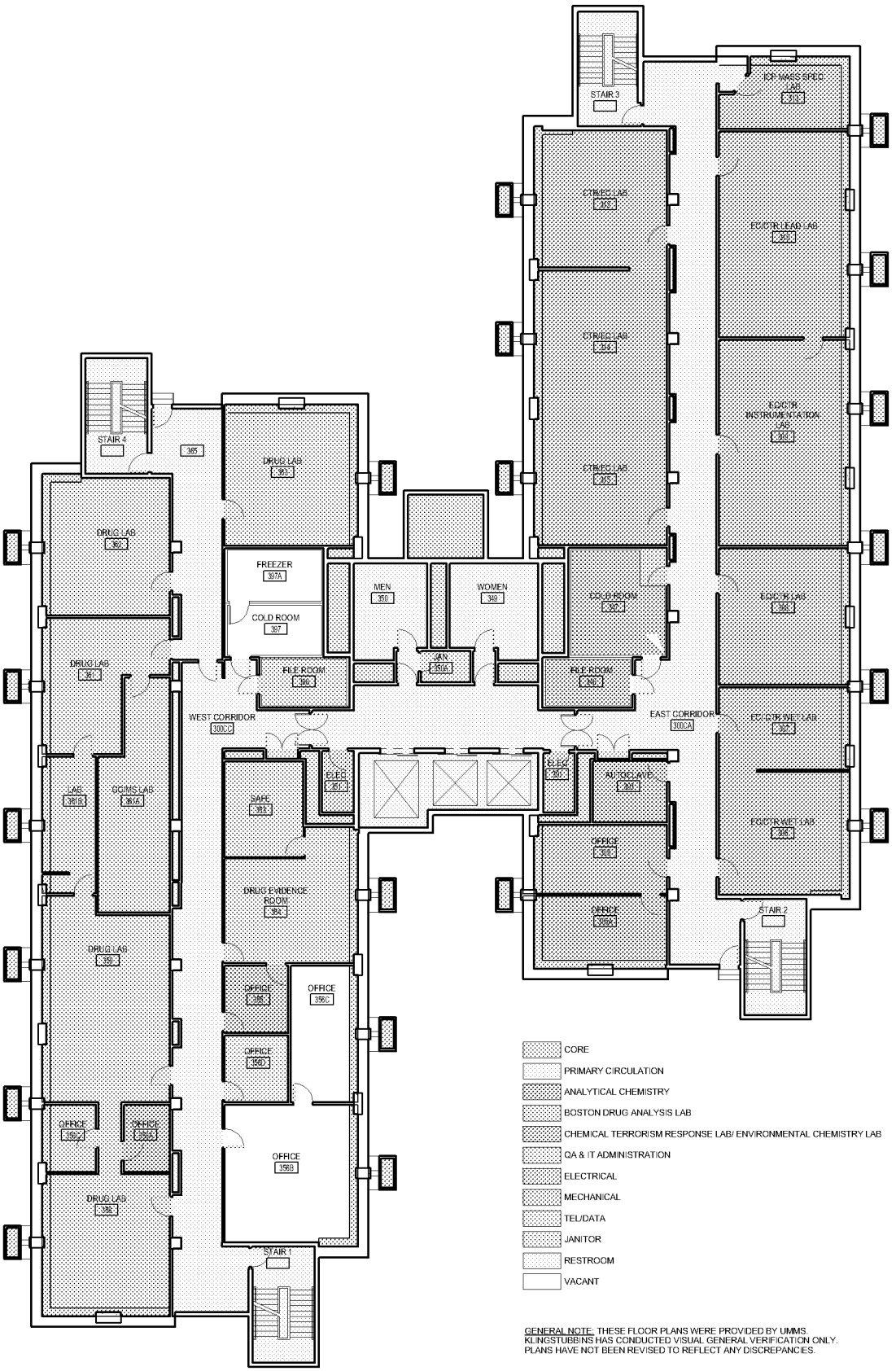
5/27/2011 10:35:20 AM

TWR-02G

EXISTING CONDITIONS - GROUPS

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

- CORE
- PRIMARY CIRCULATION
- BUILDING COMMON AREA
- UMMS ADMINISTRATION
- BIOLOGICS
- BLS ADMINISTRATION
- MANAGEMENT AND CLIENT SERVICES ADMINISTRATION
- GLASSWARE UNIT
- MEDIA PREPARATION UNIT
- KIT ROOM UNIT
- MICROBIOLOGY
- SELECT AGENT PROGRAM
- MOLECULAR DIAGNOSTICS & VIROLOGY
- BOSTON DRUG ANALYSIS LAB
- QA & IT ADMINISTRATION
- NETWORK
- HELPDESK
- HIV/AIDS SURVEILLANCE
- FINANCE
- FINANCE & OPERATIONAL SERVICES ADMINISTRATION
- PURCHASING & ACCOUNTING
- CONTRACTS
- HUMAN RESOURCES
- ADMINISTRATION & LICENSING
- DRUG CONTROL PROGRAM
- NATIONAL LAB TRAINING NETWORK
- ELECTRICAL
- MECHANICAL
- JANITOR
- RESTROOM
- VACANT
- MASS. SUPRA NATIONAL TB REFERENCE LABORATORY
- ENVIRONMENTAL HEALTH & SAFETY



EXISTING CONDITIONS - GROUPS

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

KLINGSTUBBINS

TOWER - LEVEL 3 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

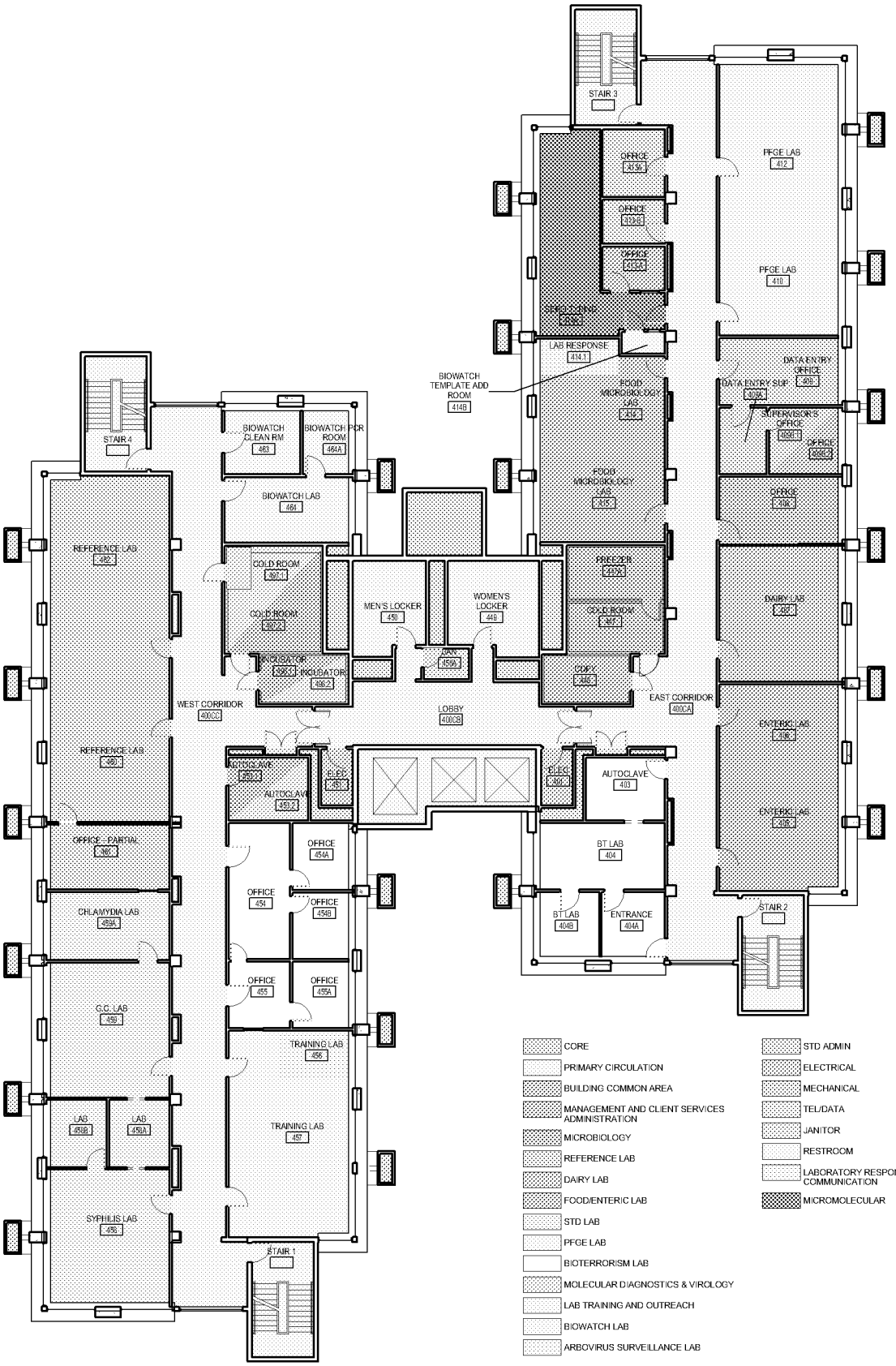
DCAM No.: DPH 0702 ST1

TWR-03G

Scale:

Date: 05/24/11

5/27/2011 10:34:54 AM



EXISTING CONDITIONS - GROUPS

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

KLINGSTUBBINS

TOWER - LEVEL 4 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

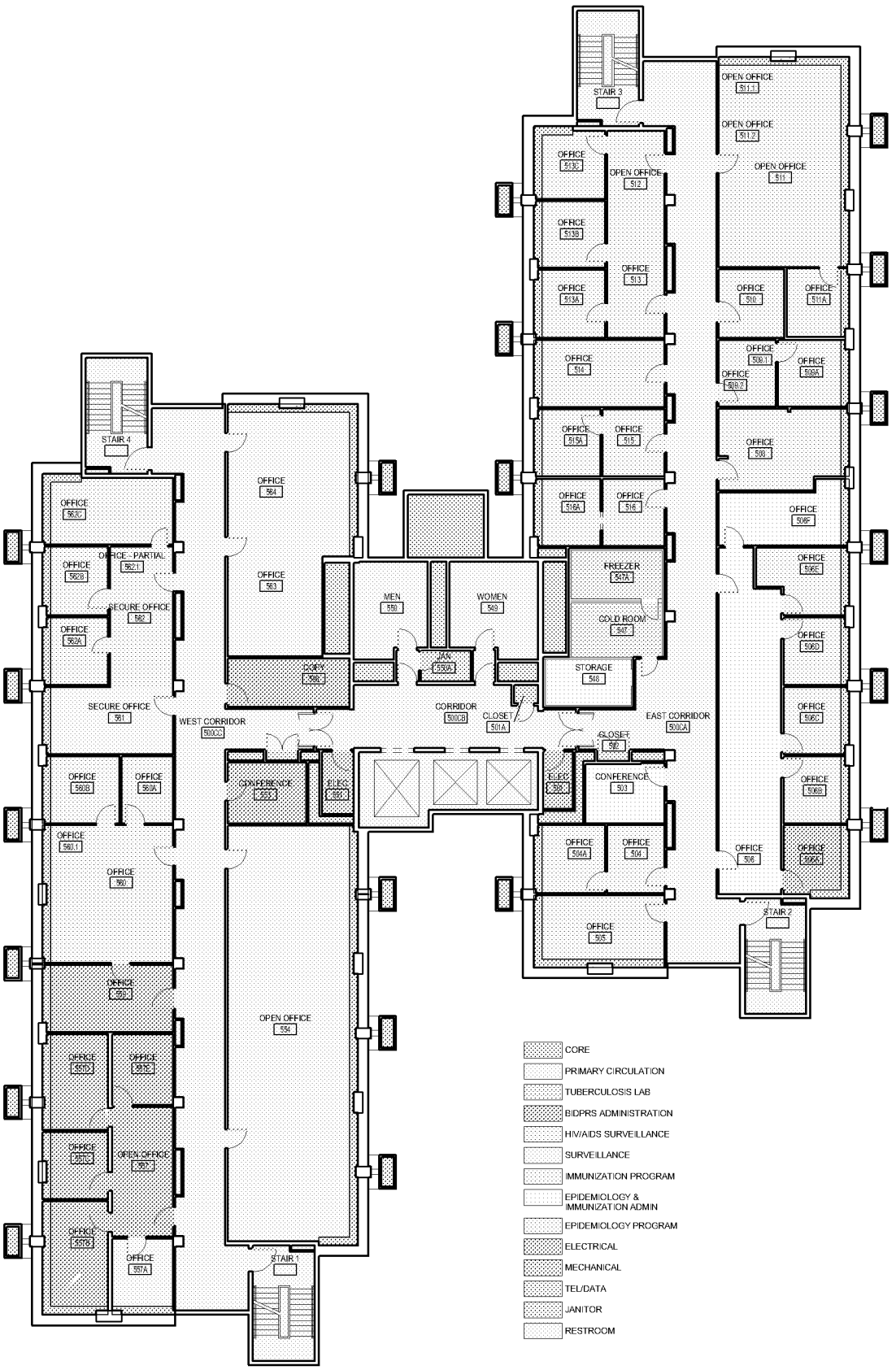
DCAM No.: DPH 0702 ST1

TWR-04G

Scale:

Date: 05/24/11

5/27/2011 10:34:34 AM



EXISTING CONDITIONS - GROUPS

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

KLINGSTUBBINS

TOWER - LEVEL 5 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

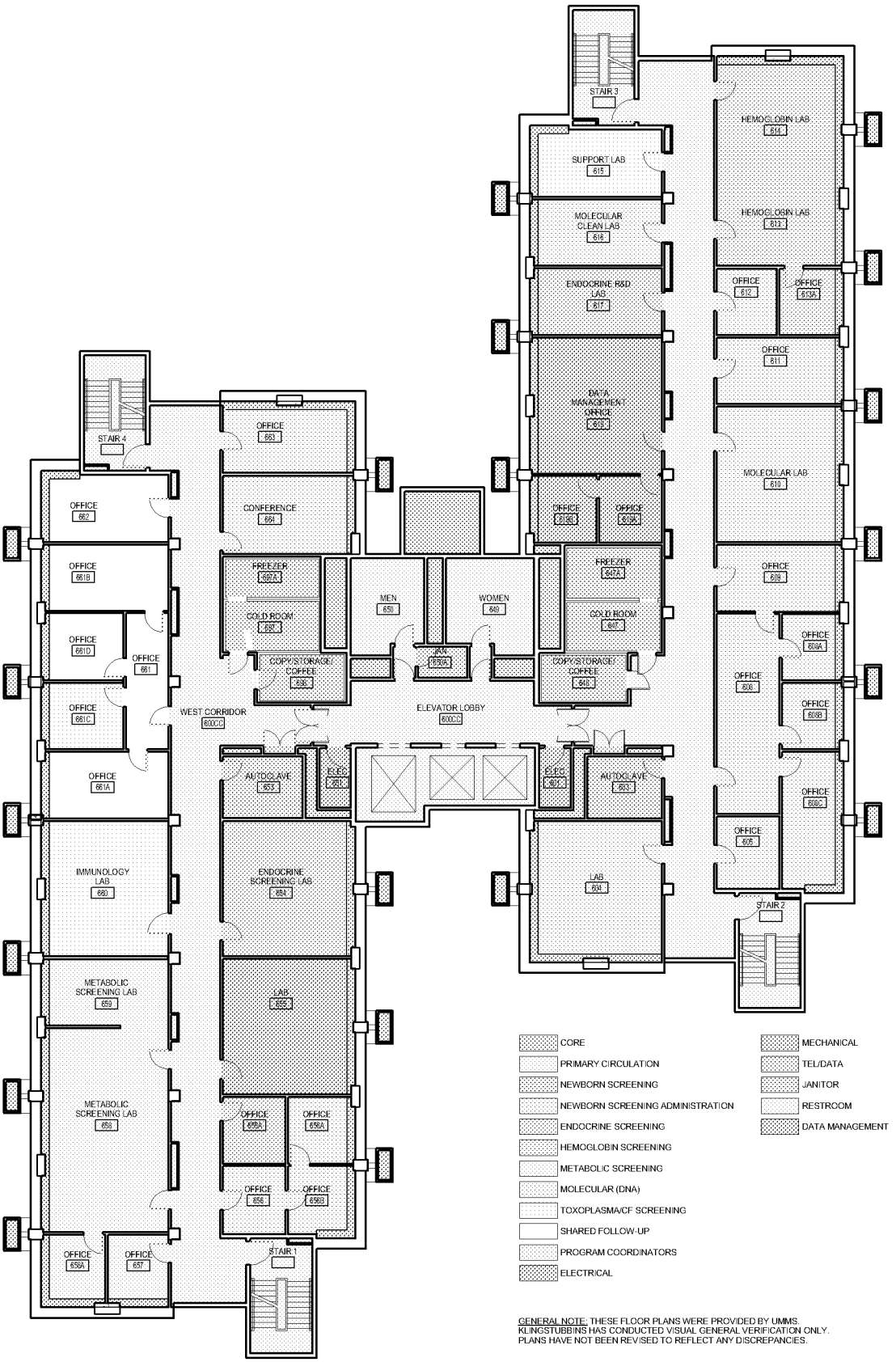
DCAM No.: DPH 0702 ST1

TWR-05G

Scale:

Date: 05/24/11

5/27/2011 10:34:15 AM



GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

EXISTING CONDITIONS - GROUPS

KLINGSTUBBINS

TOWER - LEVEL 6 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

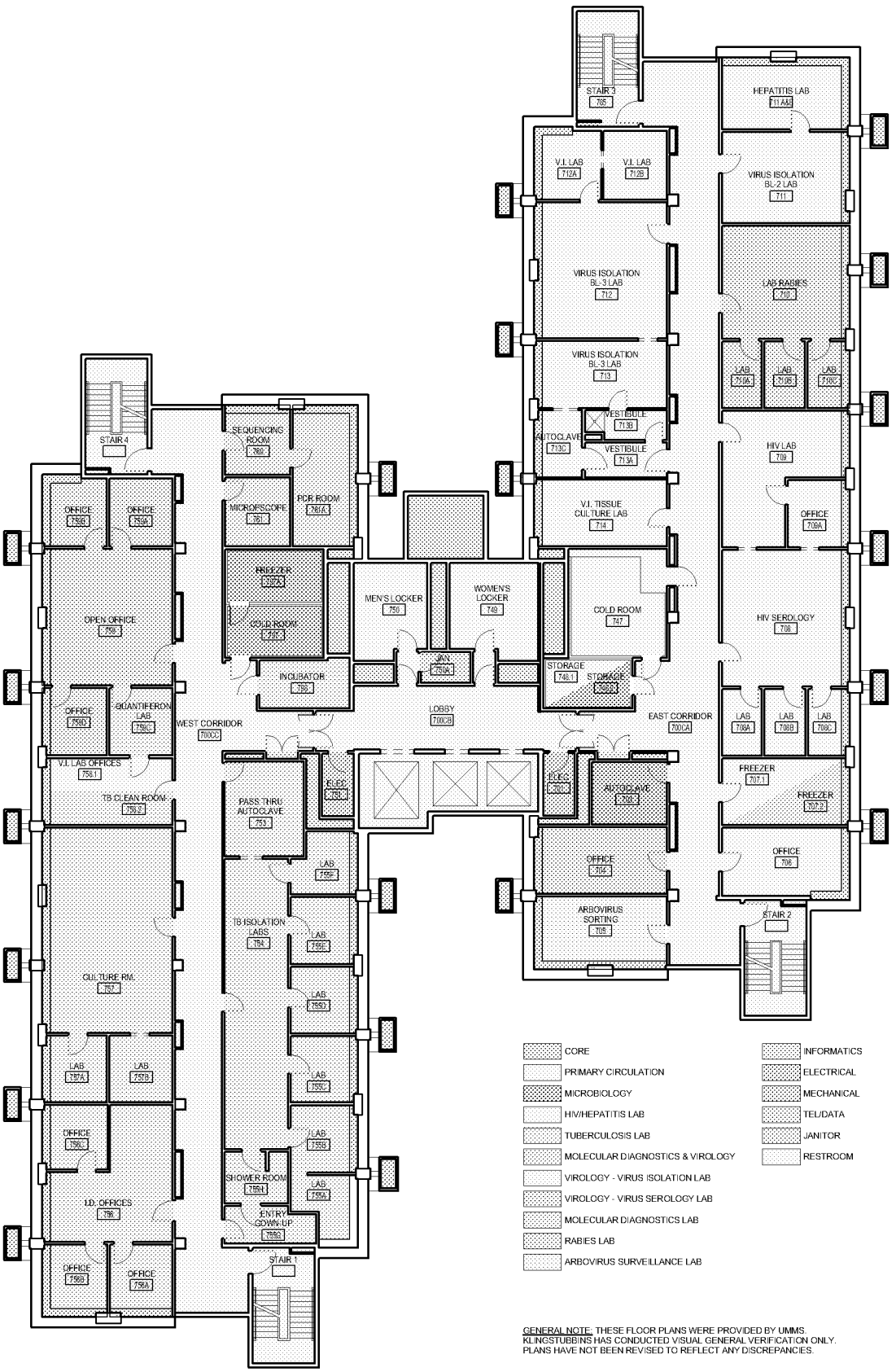
DCAM No.: DPH 0702 ST1

TWR-06G

Scale:

Date: 05/24/11

5/27/2011 10:33:55 AM



GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

EXISTING CONDITIONS - GROUPS

KLINGSTUBBINS

TOWER - LEVEL 7 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

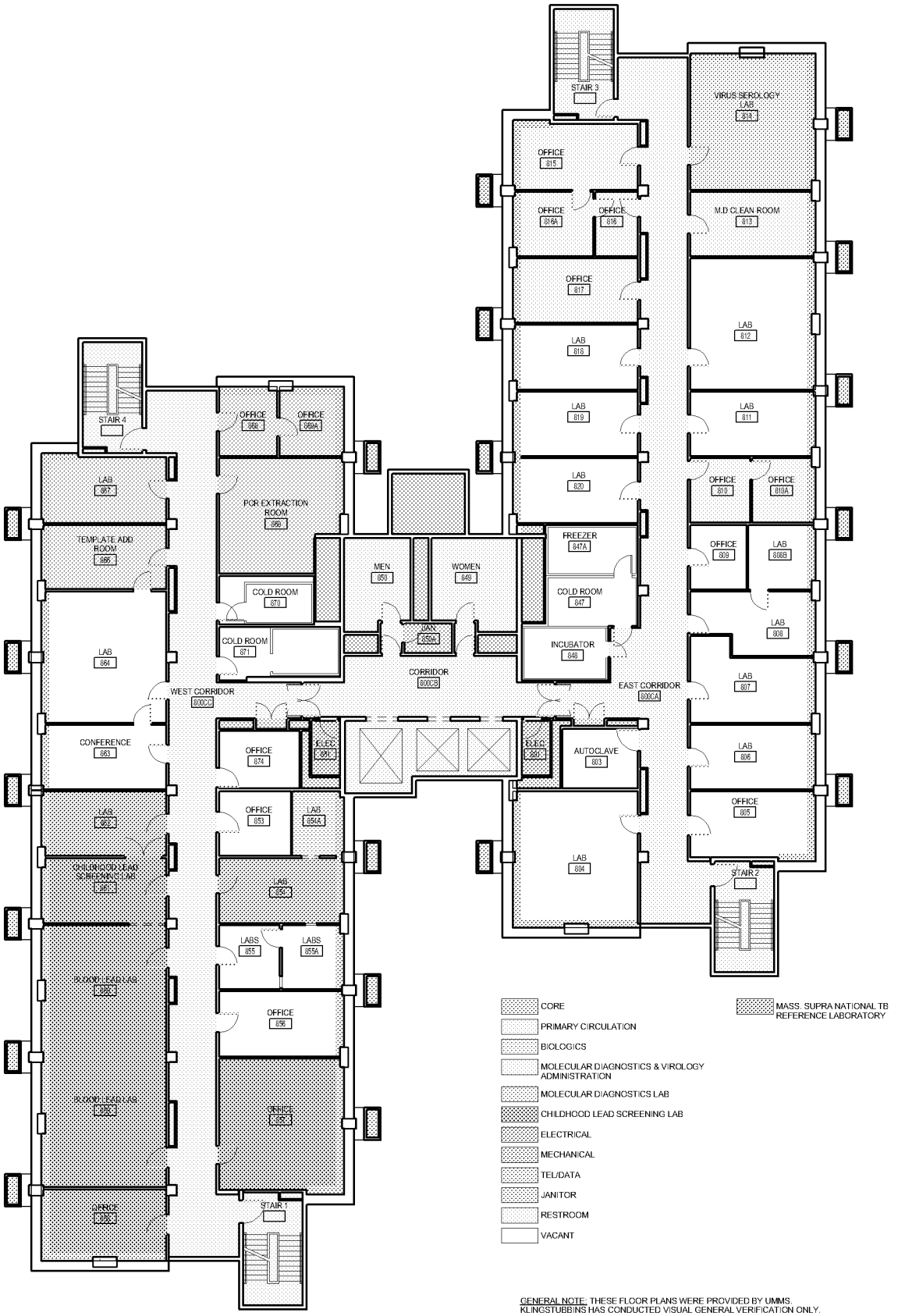
DCAM No.: DPH 0702 ST1

TWR-07G

Scale:

Date: 05/24/11

5/27/2011 10:33:32 AM



GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

EXISTING CONDITIONS - GROUPS

KLINGSTUBBINS

TOWER - LEVEL 8 GROUPS

MASSACHUSETTS STATE LAB

Jamaica Plain, MA

DRAFT

Project No.: 30-0707-00

DCAM No.: DPH 0702 ST1

TWR-08G

Scale:

Date: 05/24/11

5/27/2011 10:32:22 AM

Attachment F

Biologics Building Floor Plans

KLINGSTUBBINS

BIOLOGICS - BASEMENT GROUPS

Improvements to Massachusetts State Laboratory

Jamaia Plain, MA

DRAFT

Project No.: 200707-00

DCAM No.:

BIO-00G

Scale: NOT TO SCALE

Date: 05/24/11

5/27/2011 10:44:18 AM

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

EXISTING CONDITIONS - GROUPS

CORE
PRIMARY CIRCULATION
BIOLOGICS
ELECTRICAL
MECHANICAL
JANITOR

KLING STUBBINS

BIOLOGICS - LEVEL 1 GROUPS

Improvements to Massachusetts State Laboratory

Jamaia Plain, MA

DRAFT

Project No.: 200707-00

DCAM No.:

BIO-01G

Scale: NOT TO SCALE

Date: 05/24/11

5/27/2011 10:44:45 AM

EXISTING CONDITIONS - GROUPS

GENERAL NOTE: THESE FLOOR PLANS WERE PROVIDED BY UMMS. KLINGSTUBBINS HAS CONDUCTED VISUAL GENERAL VERIFICATION ONLY. PLANS HAVE NOT BEEN REVISED TO REFLECT ANY DISCREPANCIES.

KLIMG STUDIOS

BIOLOGICS - LEVEL 2 GROUPS

Improvements to Massachusetts State Laboratory

Jamaia Plain, MA

DRAFT

Project No.: 200707-00

DCAM No.:

Scale: NOT TO SCALE

Date: 05/24/11

5/27/2011 10:45:11 AM

BIO-02G

EXISTING CONDITIONS - GROUPS

Attachment G

Stable Building Floor Plans

KLINGSTUBBINS

STABLE - BASEMENT GROUPS

Improvements to Massachusetts State Laboratory

Enter Project Address Here

DRAFT

Project No.: 2007070O

DCAM No.: DPH 0702 ST1

STB-00G

Scale: NOT TO SCALE

Date: 05/24/11

5/27/2011 10:41:02 AM

EXISTING PLANS - GROUPS

KLING STUBBINS

STABLE - LEVEL 1 GROUPS

Improvements to Massachusetts State Laboratory

Enter Project Address Here

DRAFT

Project No.: 2007070O

DCAM No.: DPH 0702 ST1

STB-01G

Scale: NOT TO SCALE

Date: 05/24/11

5/27/2011 10:41:25 AM

KLINGSTUBBINS

STABLE - LEVEL 2 GROUPS

Improvements to Massachusetts State Laboratory

Enter Project Address Here

DRAFT

Project No.: 2007070O

DCAM No.: DPH 0702 ST1

Scale: NOT TO SCALE

Date: 05/24/11

STB-02G

5/27/2011 10:41:43 AM

EXISTING PLANS - GROUPS

Attachment H

Regulatory Review

H. Regulatory Review

1.1 Life Safety/Code Analysis

The renovation of the Tower building is to be designed per the Eighth Edition of the Massachusetts State Building Code, which is based upon the 2009 International Building Code adopted in 2010. The information below pertains to the Tower building only.

1.2 Authority Having Jurisdiction and Codes in Affect

Codes and regulations pertinent to the project include:

- 780 CMR, Massachusetts State Building Code 8th Edition (MSBC);
- 527 CMR, Massachusetts Fire Prevention Regulations (MFPR 12.0);
- NFPA 30, Flammable and Combustible Liquids Code (2008 Edition);
- NFPA 70, National Electrical Code (2008 Edition) with Massachusetts Amendments;
- NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals (2004 Edition).
- Accessibility Code - Architectural Access Regulations, CMR 521; ADA and ABA Accessibility Guidelines for Buildings and Facilities (2005 Edition)
- Energy Code - Mass. State Building Code, 780 CMR Article 13
- Elevator Code - Mass. State Building Code, 524 CMR w/ additional requirements 780 CMR 30 and 521 CMR.

An updated Chapter 34 review and analysis was provided in conjunction with the KlingStubbins study which preceded the Emergency HVAC project.

Item No.	Description	Code Section	Page	Required or Allowable	Actual per Building Design
1.3	Use Group Classification: Business Group B	304.1	IBC 24	Laboratories; testing and research	B
1.4	Building Height: 8 Story Office 100'+ H	N/A	N/A	N/A	8 Story
1.5	Largest Enclosed Area of Office Portion of the Building	N/A	N/A	N/A	***37,500 SF***
1.6	Sprinkler Requirements	Table 903.2	MSBC 53	Fully Sprinklered	Partially Sprinklered *Floor area greater than 12,000 SF*
1.7	Control Area Requirements	Table 414.2.2	IBC 59	Refer to October 2010 RJA Report	Refer to October 2010 RJA Report
1.8	Height and Area Limitations	Table 503	IBC 80	11 Stories UL SF	8 Stories 37,500 SF
1.9	Construction Classification	Table 503	IBC 80	Type IB	*(Confirm existing building)*
1.10	Fire Resistance Ratings of Structure Elements: - Structural Frame	Table 601	IBC 89	2 HR	*(Confirm existing construction)*
	- Floor Construction	Table 601	IBC 89	2 HR	*(Confirm existing construction)*
	- Roof Construction	Table 601	IBC 89	1 HR	*(Confirm existing construction)*
	- Control Area Separation	Table 414.2.2	IBC 59	1 HR *(Floors B-3)* 2 HR *(Floors 4-8)*	*TBD*
1.11	Maximum Travel Distance – Use Group B	Table 1016.1	IBC 240	300' max.	300'
1.12	Accessibility Requirements	521 CMR MAAB		Comply as applicable	New construction will comply as applicable

Item No.	Description	Code Section	Page	Required or Allowable	Actual per Building Design
1.13	Existing Structures	Chapter 34.00	IBC 571 MSBC 133	Alterations to comply as applicable	New construction will comply as applicable

1.14 Hazardous Materials and Controls Areas

Floor Level	Control Areas (# of Areas)	Storage Per Control Area (%) (Percentage of Permitted Quantity of Chemical Use)	Vertical fire separation walls (hours)
B	3	75	1
1	4	100	1
2	3	75	1
3	2	50	1
4	2	12.5	2
5	2	12.5	2
6	2	12.5	2
7-8	2	5	2

1.15 Accessibility Improvements

KlingStubbins, as a component of its Emergency HVAC Improvements Study project, has conducted an overview of the accessibility issues that may need to be addressed in a renovation of the Massachusetts State Laboratory Facilities at Jamaica Plain, Massachusetts. The Overview report is dated January 18, 2011. Although the campus is comprised of 3 buildings, the overview was limited to the Stable Building and the Tower Building at the request of DCAM. No overview was conducted for the Biologics Building, because its use is restricted to UMMS employees only. If in the future, the Biologics Building is included in the renovations, it may need to be assessed for accessibility.

There are two different accessibility regulations that apply to the renovation of the renovation of the State Laboratory buildings. The state accessibility regulations, 521 Code of Massachusetts Regulations (CMR) and are a part of the State Building Code, and are enforced by the Building Inspector and the Massachusetts Architectural Access Board (MAAB). Any feature that is required to be compliant should be modified to meet the regulations unless a variance is requested through DCAM and granted by the MAAB. Even with an MAAB variance, there may be Americans with Disabilities Act (ADA) requirements that should be met.

The federal law governing accessibility in state and municipal buildings is Title II of ADA. It requires that all programs and services offered to the public be accessible, either structurally or programmatically. Non-structural accommodations can be used to provide access to physically inaccessible facilities, if provided in an equal and integrative way. The architectural requirements for compliance with the ADA are embodied in the American with Disabilities Architectural Guidelines (ADAAG) and are generally, but not always, similar to the requirements of the MAAB.

Existing Conditions.

On March 20, 2009, KlingStubbins along with DCAM visited the Tower and Stable buildings at the Massachusetts State Laboratory Facilities at Jamaica Plain, Massachusetts to assess accessibility barriers that would need to be removed or mitigated if the Tower Building or Stables Buildings were to be renovated.

The Accessibility Overview report is general in nature and does not cover every non-conforming aspect of the facilities. The spaces that were reviewed include the following: Building Entry, Elevators, Stairs, Auditorium and Toilet Rooms. These elements were selected based upon the highest cost impact for project budgeting.

ADA Summary

The overview found that most accessibility issues are in the Tower Building. The primary issues, which will have a cost impact on renovations, are the toilet rooms and the configuration of the railings in the egress stairs. The toilet room vestibules are under sized for wheelchair access into these spaces and the showers are inaccessible. To correct these non-compliance issues, all toilet rooms will need to be reconfigured in some manner, which in turn may impact the MEP systems in the building as well as partitions and finishes. All egress stairs require the removal of existing railings and the installation of new railings in all stairs. Based on either the number of occurrences or the complications involved for both areas of concern, the cost of these renovations could be significant. Only a few minor issues were found with the Stable Building.

ROLF JENSEN & ASSOCIATES, INC.
FIRE PROTECTION CONSULTANTS

1661 Worcester Road
Suite 501
Framingham, MA 01701-5401 USA
www.rjainc.com
+1 508-620-8900
Fax: +1 508-620-0908

EXISTING BUILDING EVALUATION
THE TOWER BUILDING
DCAM MASS STATE LAB
JAMAICA PLAIN, MASSACHUSETTS

Prepared for:

KlingStubbins
1030 Massachusetts Avenue
Cambridge, Massachusetts 02138

October 13, 2010
DRAFT

Project B52104

TABLE OF CONTENTS

INTRODUCTION

KlingStubbins has retained Rolf Jensen & Associates, Inc. (RJA) to perform an evaluation of the existing Massachusetts State Laboratory located in Jamaica Plain, Massachusetts. The State Laboratory complex in Jamaica Plain consists of three (3) buildings, the Stable Building, the Biologics Building, and the Tower Building. The purpose of the evaluation is to assess compliance with applicable provisions of the Massachusetts State Building Code, Eighth Edition (MSBC), and other applicable regulations, in the context of proposed renovation work. This report does not evaluate the existing building against the applicable code at the time of construction; we assume compliance when the building was originally permitted. This report documents the requirements of MSBC Chapter 34 as they apply to the building. All code references are to the MSBC unless otherwise noted. The following report is applicable to the Tower Building.

APPLICABLE CODES

The following codes are applicable to this project:

- **Building** 780 CMR - Massachusetts State Building Code (MSBC), Eighth Edition.
- **Electrical** MFPR, 12.00 - Massachusetts Electrical Code. The Massachusetts Electrical Code is an amended version of the 2008 National Electrical Code (NFPA 70).
- **Elevators** 524 CMR - Massachusetts Elevator Regulations.
- **Fire Prevention** MFPR Massachusetts Fire Prevention Regulations (MFPR).
- **Mechanical** International Mechanical Code, 2009, as adopted and amended by the MSBC.
- **Other** National Fire Protection Association (NFPA) Standards, as referenced by the MSBC and the MFPR.

The newly adopted code is the 8th Edition MSBC and is based on the 2009 International Building Code (IBC). For the period of August 6, 2010 through February 6, 2011, either the previous 7th Edition MSBC or new 8th Edition MSBC may be used. The analysis herein is based on the current 8th edition of the MSBC. The 8th Edition MSBC Chapter 34 adopts and amends the 2009 International Existing Building Code (IEBC); thus all references to MSBC Chapter 34 will be cited as "IEBC."

EXISTING CONDITIONS REVIEW

Brian Carnazza of RJA surveyed the building on December 14th and 17th, 2007. The survey was limited to visual review of existing conditions. Destructive or invasive inspections and systems testing were not performed. This section of the report briefly summarizes our observations during the survey. All of the deficiencies stated below may not need to be corrected and will be dependent on the scope of renovation work. Later in the report, the deficient conditions are discussed in the context of the MSBC Chapter 34 analysis which includes scoping provisions and describes thresholds.

GENERAL

The building is an eight (8) story structure[1], plus a two (2) level mechanical penthouse, and one (1) story below grade. The building is classified as a non-separated mixed use occupancy with Use Group A-3, Assembly Occupancies (auditorium), Use Group B, Business Occupancies (Labs and Offices) and Use Group S-2, Storage Occupancies. Although a Chemical Storage Room was observed in the Basement, for the purposes of this review the Basement Chemical Storage will not be considered as a Use Group H-2, High Hazard Occupancy because the room construction could not be confirmed and because H-2 occupancies are not permitted below grade[2] (MSBC 415.5).

For the purposes of height and area provisions, the building would be required to be considered as a Use Group B Occupancy if the building were constructed new today. With the exception of High Hazard Occupancies (not currently present in the building), the storage and assembly occupancies appear to be accessory[3] to the main occupancy. Refer to the Construction Classification and Chapter 34 - Scoping Provisions sections of this report for more detailed information.

The building is protected throughout by an automatic sprinkler system. The majority of the existing fire alarm system has recently been replaced with a new system. Fire protection features include fire extinguishers, smoke detectors, audible and visible notification devices, and manual pull stations located in the general proximity of exits.

It is unknown at this time if future additions will be constructed and/or if the building or spaces will undergo a change of use. RJA recognizes that the scope of work for the building is subject to change.

---

1 The Penthouse is less than 1/3 of the footprint area of the building and is therefore not considered a story.

2 High Hazard Occupancies are permitted to be incidental use areas, but still require separation from the main occupancy per MSBC 508.2.4.

3 Spaces which are incidental to the main occupancy shall be separated or protected, or both, in accordance with Table 302.1.1 or the building shall be classified as a mixed occupancy and comply with Section 302.3. Areas that are incidental to the main occupancy shall be classified in accordance with the main occupancy of the portion of the building in which the incidental use area is located (MSBC 302.1.1).

CONSTRUCTION CLASSIFICATION - HEIGHT AND AREA

The building contains Use Group A-3, Assembly Spaces, Use Group B, Business Occupancies, and Use Group S-2, Low Hazard Storage Occupancies. Since the spaces are not separated from one another, the most restrictive occupancy requirements for height and area requirements should be applied. Thus, the building is required to be evaluated as a Use Group A-3, Assembly on the First Floor since the cafeteria is not clearly separated from the remainder of the First Floor. The Auditorium on the First and Second Floor appears to be separated from the remainder of the First and Second Floor by a minimum two (2) hour fire resistance rating **(should be verified)**. The most restrictive Use Group applied to the Building footprint is Use Group A-3. On floors other than the First Floor, the Use Group B requirements apply.

The Tower Building is a 194,000 gross square foot facility. The building is eight (8) stories in height and is considered a high-rise building. The building is constructed of cast-in-place concrete and concrete beam structural members. The first three (3) levels of the building vary in floor plate area and are larger than Levels 3 to 8 (referred to as the tower levels). The tower levels are each split into two (2) floor plates, the East wing and the West wing. The tower wing levels are interconnected at every floor by an elevator core link. The building's construction type most nearly resembles **Type IB,** (2-hour) Protected Noncombustible Construction. This construction type would be permitted by the requirements for new construction provided the building remains a Use Group B, Business Occupancy. If the building is not undergoing a change in use or addition, the construction type is not required to be evaluated. **It is our assumption that there are no plans for the building to undergo a change in use or occupancy at this time.**

For a partial change in use the construction type of the building would not require an upgrade. Portions of the building that changed to a new use group can be separated from the remainder of the building with fire separation assemblies complying with MSBC 508 and 707. Therefore if a large Assembly use area was added or the existing cafeteria and/or auditorium was significantly renovated they would have to be separated from the adjacent office/lab use (Use Group B) by a 1-hour fire resistance rated separation as the building is fully sprinklered.

An entire building change in use, such as from a Use Group B to Use Group A-3, would require a height and area analysis based on MSBC new construction requirements.

USE GROUP SEPARATION

If the use of the building is not proposed to be changed and no building additions are proposed, separation of Use Groups is not required. IEBC 912.1.1.1 states that if portions of the building changed to a new Use Group are separated from the remainder of the building with fire separation assemblies, only the area changing use is required to comply with requirements for Level 3 Alterations. If an area undergoes a change in use

without being separated from the existing construction, the entire building must comply with the requirements for Level 3 Alterations (IEBC 912.1.1.2). If the use of the building is not changing, compliance with the MSBC height, area and construction type requirements for new construction is not required.

However, if the building undergoes a change in use, compliance with MSBC height, area, and construction type requirements for new construction is mandated.

MEANS OF EGRESS

The building contains enclosed egress stairs throughout. Existing open stairs are present on the 1st and 2nd floors and in the mechanical penthouse. **Stair and door egress capacity, discharge, and location of exits are sufficient and compliant for the existing occupant load (see below). Also see the Chapter 34 analysis for discussion regarding the Mechanical Penthouse stairs.** The existing stair conditions are described herein.

The Penthouse Level will be served by two (2) enclosed stairs, Stairs 1 and 3, located outside of the actual penthouse enclosure, which requires occupants to traverse across the flat roof to reach the stair enclosure.[4] These stairs connect all levels of the building including the mechanical penthouse. Stair 1 and Stair 3 discharge directly to the exterior at grade on the First Floor. The discharge door of Stair 3 on the First Floor is exposed to unprotected openings of the cafeteria. However, the Second Level of the mechanical penthouse is served only by a spiral stair (see later discussion).

Floors Three through Eight are served by four (4) stairs (Stairs 1, 2, 3, and 4). Stair 2 discharges directly to the exterior at grade on the First Floor. Stair 4 discharges into a corridor on the First Floor[5] which leads to an exterior walkway and opens into an open parking area.

The Second Floor is served by four (4) enclosed exit stairs (Stairs 2, 3, 4, and 5). Stair 5 discharges directly to the exterior at grade on the First Floor. However, the Stair 5 enclosure is open to the First Floor Food and Drug office with unprotected openings. It is unknown at this time if this existing condition was in compliance with the code in effect at the time of construction.

The First Floor is served by six (6) exit doors which discharge directly to the exterior at grade. The exit doors leading from the cafeteria, along with Stair 3, discharge into a courtyard area which is gated but unlocked from the egress side (courtyard interior side).

---

4 The penthouse level is also served by a single freight elevator, however, the elevator is not considered as an approved means of egress from the penthouse levels.

5 Stair 4 also serves the basement level; however, occupants would be required to discharge through the loading dock which is not typical used as an approved means of egress.

The Basement Floor is served by Stairs 2, 3, 4 and 5. A loading dock area which opens directly to the exterior of the building is located in the Basement. The Boiler plant has a mezzanine level that is served by an open stair. A second means of egress from the mezzanine level is provided from the rear corridor that leads to the overhead walkway. The mezzanine houses mechanical equipment and an enclosed locker room containing showers and bathrooms. Portions of the mezzanine in the Boiler Plant are allowed to be enclosed provided that the areas enclosed have an occupant load less than ten (10) (MSBC 505.4 Exception 1).

OCCUPANT LOAD AND EGRESS CALCULATIONS

The occupant loads and egress capacities for Floors 3 through 8 are provided below. It is our understanding that these are the only floors which will be undergoing renovation.

Table 1: Floor 3-8 Occupant Load

Room or Space	**Area (sq.ft.)**	**Occupant Load Factor (sq. ft. /occ.)**	**Occupant Load**
Business (Lab, Lab Support, Workspace, Specialty Lab)	9,455	100	95
Assembly (Break Area)	266	15	18
TOTAL PER FLOOR			**113**

Table 2: Floor 3-8 Egress Capacity

Building Exit	**Component Description**	**Clear Width of Limiting Component (inches)**	**Exit Element Capacity Factor (inches / person)**	**Exit Capacity (people)**
Stair 1	Stair Door	33	0.15	220
Stair 3	Stair Door	33	0.15	220
Stairs 2 & 4	To be removed	-	-	-
TOTAL				**440 > 113**

The exit capacity is sufficient on each floor which will be undergoing renovation based on the proposed occupancies.

EXIT SIGNAGE AND LIGHTING

Exit signs are provided throughout; however, the existing layout may be insufficient. Exit signs should be added in deficient areas to provide adequate illumination and point occupants in the direction of egress travel.

Emergency lighting is provided in exit stairs via battery pack units. Further, all electrical loads are supported by the building's emergency generators located in the Basement.

FLOOR OPENINGS

Unprotected floor openings were observed in the mechanical penthouse level and shafts connecting Floors 1-8 are open to the mechanical penthouse level.

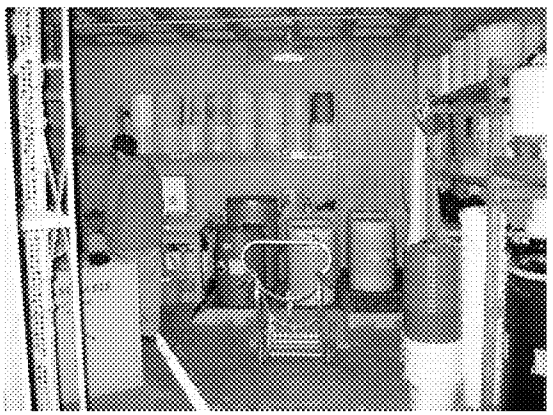
The typical exterior perimeter columns project outward from the exterior building face and support exterior air ducts. The air ducts are mechanical shafts which run along the height of the building and are connected to the ceiling plenum at every level serving chemical exhaust hoods. The shafts start from either the ceiling of the Second or Third Floor and terminate three feet above the roof parapet. The exterior shafts are made of precast concrete panels on two sides and insulated metal panels on the other two sides. It is unclear if the insulated metal panels are fire-resistance rated for two (2) hours. Although they are located exterior to the building, ducts from the interior of the building access these shafts at every level of the tower.

All floor openings should be enclosed with rated construction, specifically the open shafts previously noted at the penthouse level, protected with proper opening protection, provided with fire dampers (ventilated duct work) or provided with through penetration fire stopping for annular spaces (duct and pipe penetration at floors in electrical closets). It should be noted, however, that protection of the floor penetrations (ducts and pipes) is not explicitly required by MSBC Chapter 34 unless these areas are affected by renovation work.

HAZARDOUS MATERIALS

A hazardous materials storage room on the Basement level contains various toxic, corrosive, combustible, and flammable materials. It is our understanding that flammable and combustible materials are used in small quantities throughout the laboratory spaces located within the building. Small flammable liquid cabinets were observed throughout the building in laboratory spaces. UMass has provided RJA with an inventory of flammable and combustible liquids on a per floor basis. Upon review, it does not appear that the quantities exceed the limitations of the exempt amount tables as provided in Appendix A. It should be noted that RJA did not take an inventory of the chemical quantities being stored at the time of the survey. However, allowable quantities on the upper floors are limited and should be monitored closely to remain below the exempt amounts. **Further, flammable liquids are not permitted to be**

stored below grade in accordance with MFPR 14.03; further discussion with the fire official is warranted.



CONTROL AREAS

The approach for the building is to use and store chemicals and hazardous materials within the Basement to Eighth Floor control areas. The number and protection of each control area permitted per floor and the associated type and quantity of chemical and hazardous materials permitted within each control area are provided below. **The MSBC 8th Edition control area requirements would be applicable if a laboratory floor undergoes renovations or changes in material quantities.** It should be noted that the maximum allowable quantities of hazardous materials are the same in the 7th and 8th Editions of the MSBC. Laboratory floors not involved in renovation work would be permitted to remain in use as is.

The MSBC 8th edition control area requirements are provided below:

MSBC Section 414.2 permits each floor of the building to be divided into Control Areas. The amount of chemical use and storage within each Control Area and the number of Control Areas permitted varies on a floor-to-floor basis. Refer to Table 1 below for the number of Control Areas permitted on each floor and the percentage of chemical use and storage within the Control Area that is permitted.

Table 1: Design and Number of Control Areas Permitted (MSBC T-414.2.2)

Floor Level	Number of Control Areas Per Floor	Percentage of Permitted Quantity of Chemical Use and Storage Per Control Area (%)	Vertical fire separation walls (hours)
Basement	3	75	1
1	4	100	1
2	3	75	1
3	2	50	1
4	2	12.5	2
5	2	12.5	2
6	2	12.5	2
7-9	2	5	2

Notes: Permitted quantities have been provided in Appendix A for control areas located on the Basement through Eighth Floors.

Control areas are compartments of a building surrounded by fire barrier walls and fire-resistance-rated fire floor/ceiling assemblies (MSBC 414.2.1). To minimize the potential for fire spread from the exposed side of a vertical fire barrier (wall) to the unexposed side, such assemblies must be continuous from a fire-resistance-rated floor/ceiling assembly below to the underside of the floor slab or roof deck above (MSBC 707). Fire barriers must be supported by construction having an equivalent fire resistance rating. The intent of this requirement is to prevent the effectiveness of the assembly from being circumvented by a fire that threatens the supporting elements.

The minimum fire resistance rating of the floor construction and construction supporting the floor of a Control Area is required to be two (2) hours (MSBC 414.2.4). This means that a Control Area on the Seventh Level (for example), should be supported from the foundation up to and including the Seventh Level by 2-hour fire resistance rated construction.

All flammable or combustible liquids, flammable solids or flammable gases for which a permit has been granted under MFPR 14.00 shall be kept or stored in such a manner as the official granting the permit may prescribe (MFPR 14.04 (4)).

Existing buildings in full compliance with the codes in force at the time of construction or alteration thereof, and that have been properly maintained and used for such use as originally permitted, shall be exempt from the requirements of MFPR pertaining to isolation of hazardous operations and mixed uses, provided (MFPR 1.02 (5)(c)):

> "The head of the fire department shall require the installation of fire safety devices or systems (fire extinguishers, fire alarms, fire detection devices, sprinklers or similar systems) where they are necessary to provide safety to life and property. In lieu of requiring the installation of safety devices or systems or when necessary to secure safety in addition thereto, the head of the fire department shall prescribe limitations on the handling and storage of materials or substances or upon operations that are liable to cause fire, contribute to the spread of fire, or endanger life or property."

Storage of Class I liquids is not permitted in basement areas. Class II and Class IIIA liquids are permitted to be stored in basements provided that automatic sprinkler

protection and other fire protection facilities are provided in accordance with Section 4.8 (NFPA 30, 4.4.3.5). According to the flammable inventory list provided by UMass, it is our understanding that Class I liquids (i.e. Acetone, Methanol, Propanol, etc.) are currently stored in the Basement Chemical Storage room. **The existing flammable liquids permit issued by the Boston Fire Department should be reviewed to verify if the existing storage of Class I liquids is allowed on the Basement level.**

CHEMICAL USE AND STORAGE IN CONTROL AREAS

As a guide to the design team, Appendix A lists the maximum quantity of chemicals that are permitted to be used or stored within a First Floor Control Area. The Table in Appendix A is based on the tables provided in MSBC Tables 307.1(1) and (2). The values have been modified to reflect quantity increases and decreases where applicable. The quantities of some chemicals are increased based on the assumption of a complete sprinkler system throughout the building in accordance with MSBC Section 903.3 and that all chemicals are stored in approved cabinets, gas cabinets, fume hoods, exhausted enclosures or safety cans as specified in the MFPR.

The following fire protection features are required:

- Hazardous materials quantities in each control area are limited to the maximum amounts indicated in the attached table.

- A minimum 45-minute opening protective fire protection rating should be provided for door or window openings within 1-hour control area separations (MSBC 716.1). A minimum 90-minute opening protective fire protection rating should be provided for door or window openings within 2-hour control area separations (MSBC 716.1).

- Glazing used in the control area separations (other than glazing in doors) should be rated for one (1) or two (2) hours by the ASTM E119 fire test. Note that 45-minute or 90-minute glazing can be used if the total openings in the control area separation are less than 25% of the overall area (MSBC 709.3). Wired glass can be used, provided that the maximum panel size does not exceed 1,296 in^2 for 45-minute openings and 100 in^2 for 90-minute openings (MSBC Table 715.5.4).

It should be noted that if a High Hazard Occupancy is to be provided due to hazardous chemical quantities exceeding those allowed in MSBC Tables 307.1 (1) and/or (2), the new occupancy, including all building systems such as HVAC, would be required to comply with all new construction requirements.

CHAPTER 34 EVALUATION

This report section documents the Chapter 34 Evaluation of the Tower Building in accordance with the 2009 IEBC with Massachusetts amendments. Each of the code requirements are summarized below with commentary provided in **bold text.**

CODE APPLICATION REVIEW

The majority of the current Code provisions are intended for application to new construction projects. The application of these provisions to existing buildings is specifically addressed in IEBC 101.5. Renovation of existing buildings can be evaluated under one of three methods: the prescriptive compliance method (IEBC 101.5.1), the work area compliance method (IEBC 101.5.2) or the performance compliance method (IEBC 101.5.3). Generally, the work area compliance method is the most flexible method. The evaluation provided herein is based on the work area compliance method (IEBC Chapters 4 through 12 as applicable).

The scope of work classifies the project as a Level 2 alteration (includes the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment per IEBC 404.1). The project is not a Level 3 alteration as the work area does not exceed 50% of the aggregate area of the building (IEBC 405.1). Level 2 alterations require compliance with IEBC Chapter 6 for Level 1 alterations and the provisions of IEBC Chapter 7 for Level 2 alterations (IEBC 404.2).

SECTIONS 601 & 701 – GENERAL

An existing building or portion thereof should not be altered such that the building becomes less safe than its existing condition (IEBC 601.2). All new construction elements, components, systems and spaces should comply with the requirements of the MSBC, with the following exceptions (IEBC 701.3):

- Windows may be added without requiring compliance with the MSBC light and ventilation requirements (Exception 1);
- The length of dead-end corridors in newly constructed spaces need only comply with IEBC 705.6 (Exception 3);
- The minimum ceiling height of newly created habitable and occupiable spaces and corridors is 7-feet (Exception 4).

SECTIONS 602 & 703 – BUILDING ELEMENTS AND MATERIALS

New interior wall and ceiling finishes should comply with MSBC Chapter 8 (IEBC 602.1). New interior floor finish should comply with MSBC 804 (IEBC 602.2). New interior trim should comply with MSBC 806 (IEBC 602.3). The interior finish of walls and ceilings in

exits and corridors in any work area should comply with the MSBC, except that existing noncompliant interior finishes can be treated with an approved fire-retardant coating to achieve the required rating (IEBC 703.4).

Existing interior vertical openings connecting two (2) or more floors should be enclosed with approved assemblies having a fire-resistance rating of not less than one (1) hour with approved opening protectives (IEBC 703.2.1). Interior vertical openings other than stairways may be blocked at the floor and ceiling of the work area by installation of not less than two (2)-inches of solid wood or equivalent construction (Exception 2). In Group B occupancies, no enclosure is required of vertical openings not exceeding three (3) stories in sprinklered buildings (Exception 5.2).

Every portion of a floor that is more than 30 inches above the floor or grade below without guards or with existing guards in danger of collapsing, should be provided with guards in accordance with the MSBC (IEBC 703.5).

SECTIONS 603 & 704 – FIRE PROTECTION

Alterations should be done in a manner that maintains the level of fire protection required (IEBC 603.1). When existing buildings or portions thereof undergo additions or alterations, M.G.L. c. 148, § 26G may apply with respect to automatic sprinkler requirements (IEBC 102.2.1.1 and 603.2). **The building was recently upgraded to be sprinklered throughout (final acceptance in October, 2008). The building will not undergo a reduction in sprinkler protection as a result of the proposed scope of work.**

If the work area on any floor exceeds 50% of that floor area, a fire alarm system is required; existing alarm notification appliances should be automatically activated throughout the building (IEBC 704.4.1 and 704.4.2).

Other requirements of IEBC Sections 603 and 704 do not apply as the building is already fully sprinklered and was recently provided with a fire alarm upgrade in 2003.

SECTIONS 604 & 705 – MEANS OF EGRESS

HAZARDOUS MEANS OF EGRESS

Alterations should be done in a manner that maintains the level of protection provided for the means of egress and as provided in IEBC 102.2.2.1 (IEBC 604.1 and 705.2). IEBC 102.2.2.1 requires that the following conditions be corrected in all existing buildings:

1. Less than the number of means of egress serving every space and/or story, required by MSBC Chapter 10;

2. Any required means of egress component which is of insufficient width to provide adequate exit capacity in accordance with MSBC 1005.1;
3. Any means of egress which is not arranged to provide safe and adequate means of egress, including exit signage and emergency lighting in accordance with MSBC Chapter 10.

If not corrected, the building official may cite each deficiency in writing as a violation, which will order the abatement of the nonconformance and require a date of completion of such abatement work.

Each floor will be provided with sufficient egress capacity for the proposed occupant loads using a factor of 100 square feet per occupant in business and laboratory occupancies and 15 square feet per occupant in assembly occupancies (cafeteria, conference rooms) (MSBC Table 1004.1.1).

Potential hazardous means of egress issues, as observed during our site survey, are summarized below:

1. Each floor will continue to be served by a minimum of two (2) exits as required by MSBC Table 1021.1 for floors with 500 or fewer occupants (IEBC 705.3). Thus, the number of means of egress from each floor and space in the existing building is sufficient for the current occupant load with the possible exception of the type of exit stairs from the second mechanical penthouse level. This issue is not clearly addressed in the code. Most authorities use the MSBC Chapter 5 egress criteria for enclosed mezzanines. Per this requirement, an additional exit stair would be required from a penthouse with a calculated occupant load of 10 (area of 3,000 sq. ft.). The total area of the penthouse should be verified.

2. As cited above, exit signs should be added in deficient areas to provide adequate illumination and point occupants in the direction of travel. Some additional exit signage will be required in exit access corridors to indicate the direction of egress (approximately 10 additional signs). To the extent that could be confirmed by visual inspection, it appears that emergency lighting is adequately provided to meet the light intensity requirements in the event of failure of normal building power.

3. Spin wheel thumb locks were found in some areas, such as doors leading out of an office suite or laboratory area. The outdoor deck located on the Second Floor outside of the Health Quality Management Area has a single door that is equipped with a thumb lock operated from the inside of the building. Locks and latches are not permitted in these means of egress doors (MSBC 1008.1.9.3). Locks on accessible doors should have a shape that does not require twisting of the wrist to operate (MAAB 26.11.1).

4. There is no stair interrupting gate present in Stair 4 to indicate to occupants that the First Floor is the level of exit discharge rather than the Basement Floor (MSBC 1022.7).

5. Exit Stair 5, which serves the Basement Floor through the Second Floor and its roof, is not completely enclosed with fire resistance rated construction on the First Floor. As an exit enclosure serving three (3) stories, a minimum one (1)-hour fire-resistance rating is required (MSBC 1022.1).

6. The Food & Drug office on the First floor opens directly into Stair 5 via two double non-rated glass doors. As an exit enclosure requiring a one (1)-hour fire-resistance rating, one (1)-hour doors are required (MSBC Table 715.4). One available option is a UL-listed, rated fire glass and frame assembly, such as can be found at http://www.fireglass.com/framing/heat-barrier/ or equivalent.

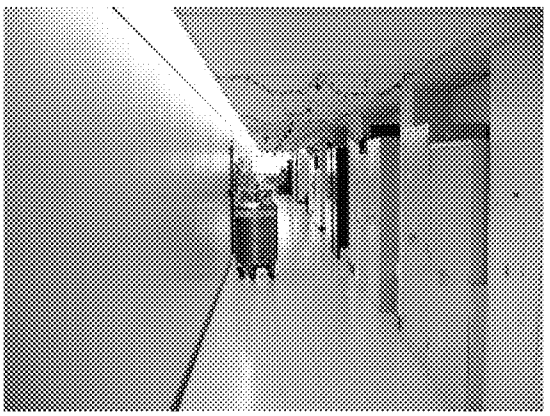
7. Exit Stair 4 discharges into an exit corridor on the First Floor that leads to the exterior of the building. Up to 50% of the number and capacity of the exit enclosures is permitted to egress through areas on the level of discharge provided all of the following are met (MSBC 1027.1 Exception 1):

   - Such exit enclosures egress to a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the exit enclosure **(should be confirmed by building official)**.
   - The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire-resistance rating for the exit enclosure **(requirement satisfied by Construction Type IB which provides a 2-hour floor rating)**.
   - The egress path from the exit enclosure on the level of exit discharge and all portions of the level of exit discharge with access to the egress path is protected throughout by an approved automatic sprinkler system **(requirement satisfied)**.

8. Electrical and/or mechanical spaces open directly into the stair enclosures of Exit Stairs 1, 2, 3, 4, and 5 at various floors. Per MSBC 1022.3, openings in exit enclosures should not include access doors from normally unoccupied spaces.

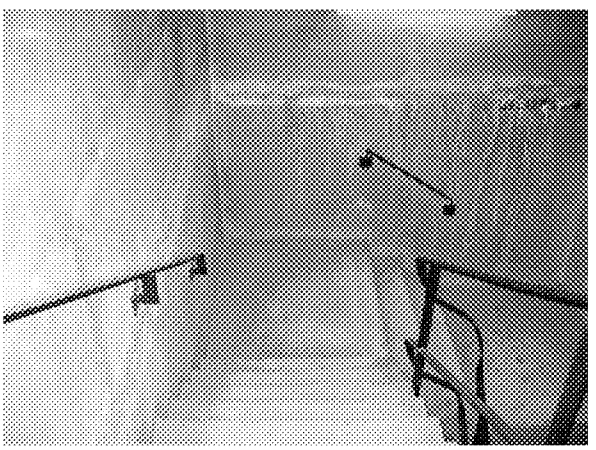
9. During an incident lock-down certain floors are access controlled and require a pass card to re-enter the floor from the enclosed stairs serving the floors. Stairway doors other than the exit discharge doors are permitted to be locked from the stairway side; however, such lockable doors should be capable of being unlocked simultaneously without unlatching upon a signal from the fire command center (MSBC 403.5.3). It is our understanding based on discussions with UMass that upon a building fire alarm the access controlled equipment is disabled and permits occupant access to the access controlled floors.

10. Combustible storage and wall hangings were observed throughout exit access corridors. In addition trash barrels and miscellaneous storage was also observed in a majority of the stair enclosures. These materials should be relocated out of means of egress components.



11. The pedestrian bridge connecting the Biologics building is not currently a required means egress based on number and capacity of means of egress. The pedestrian bridge is currently used for storage. It should be noted that any renovation work or modification to the pedestrian bridge should comply with MSBC Section 3104.

12. Existing guards located within existing stairs are approximately 36 inches in height with 24 inch open guards. Guards should be at least 42 inches in height measured vertically above the leading edge of the tread or adjacent walking surface (MSBC 1013.2). Open guards should not have openings which allow passage of a sphere 4-inches in diameter from the walking surface to the required guard height (MSBC 1013.3). From a height of 36 to 42 inches, guards should not have openings which allow passage of a sphere 4-3/8 inches in diameter (Exception 1). The triangular openings at the open sides of a stair, formed by the riser, tread and bottom rail should not allow passage of a sphere 6-inches in diameter (Exception 2).



13. At locations where handrails are not continuous between stairway flights, including the top and bottom of a stairway, the handrails should extend horizontally at least 12 inches beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser (MSBC 1012.6). Handrails and guards should be upgraded throughout the building.

14. Occupants discharging from Stair 3 are exposed to unprotected openings of the cafeteria. Every required interior and exterior exit element which does not adjoin a public way should be directly connected to the public way or to an open court leading to the public way by an enclosed passageway at the level of exit discharge, constructed in accordance with the requirements for the enclosure of the exit it serves (MSBC 1027.6). It is recommended that minimum 45-minute opening protectives be provided to the existing unprotected openings exposing the egress discharge path from the Stair 3 and the courtyard.

15. An Airlock enclosure in the Basement animal facility did not contain any emergency exit controls in order to egress the airlock area in the case of an emergency. This airlock enclosure should be provided with an approved emergency exit control.

OTHER MEANS OF EGRESS REQUIREMENTS

In any work area, all doors opening onto an exit passageway at grade or an exit stair should be self-closing or automatically closing by listed closing devices (IEBC 705.4.3).

Corridor doors in the work area should not be constructed of hollow core wood and should not contain louvers. Existing doors in buildings sprinklered throughout are only required to resist smoke and be reasonably tight fitting (IEBC 705.5.1 Exception 3).

In any work area, any other sash, grille or opening in a corridor and any window in a corridor not opening to the outside air should be sealed with materials consistent with the corridor construction (IEBC 705.5.3).

In other than Group A and H occupancies, existing dead end corridors are permitted to be up to 70 feet in length and newly constructed or extended dead-end corridors are permitted to be up to 50 feet in length in a sprinklered building (IEBC 705.6, Exceptions 3 and 4). In Group A or H occupancies, dead end corridors in any work area should not exceed 35 feet (IEBC 705.6).

Means of egress in all work areas should be provided with artificial lighting and exit signs in accordance with the MSBC (IEBC 705.7.1 and 705.8.1).

SECTIONS 605 & 706 – ACCESSIBILITY

Accessibility requirements should be in accordance with 521 CMR, Massachusetts Architectural Access Board (MAAB) (IEBC 605.1 and 706.1).

MAAB applicability criteria for existing buildings are identified in MAAB Section 3.3. There are three (3) thresholds used to determine the extent of compliance required. These thresholds are as follows:

1. If the work being performed costs less than $100,000, then only the work being performed must comply with MAAB.

2. If the work being performed costs more than $100,000 but less than 30% of the full and fair cash value of the building, then the work being performed must comply with MAAB and the following features must be provided:

    a. An accessible public entrance;
    b. A public accessible toilet room (if public toilets are provided);
    c. An accessible telephone (if public telephones are provided); and
    d. An accessible drinking fountain (if public drinking fountains are provided).

3. If the work being performed costs more than 30% of the full and fair cash value of the building, then the entire building must be made to comply with MAAB.

Work performed that is limited solely to electrical, mechanical, or plumbing systems and that does not involve the alteration of any elements or spaces required to be accessible by MAAB are excluded from this threshold review (MAAB 3.3.2(b)).

When the work performed on a building is divided into separate phases or projects or is under separate building permits, the total cost of such work in any 36-month period should be added together in applying the threshold criteria above (MAAB 3.5).

The client, based on the scope of work and the fair cash value of the building, should determine the exact level of accessibility compliance. However, it is the assumption of RJA that the extent of the work over any 36-month period will exceed $100,000 but be less than 30% of the full and fair cash value of the building. Thus, Threshold 2 (above) would require an accessible public entrance (provided), and if public facilities are provided, an accessible toilet, telephone and drinking fountain.

SECTION 702 – SPECIAL USE AND OCCUPANCY

The building should comply with the hazardous material control area guidelines stated above in order to comply with the MSBC and IEBC and in order to not be classified as a Use Group H, High Hazard occupancy. The building is not classified as any other special use or occupancy of MSBC Chapter 4 (IEBC 702.1).

SECTIONS 606 & 707 – STRUCTURAL

The project team's structural engineer should address the requirements contained in IEBC Sections 606 and 707.

SECTIONS 607 & 711 – ENERGY CONSERVATION

The project team's energy consultant should address the requirements contained in IEBC Sections 607 and 711.

SECTION 709 – MECHANICAL

The project team's mechanical engineer should address the requirements contained in IEBC Section 709.

CHAPTER 9 – CHANGE OF OCCUPANCY

It is our assumption that there are no plans for the building to undergo a change in use or occupancy at this time. Should this assumption change at a later date, compliance with IEBC Chapter 9 is mandated.

CHAPTER 10 – ADDITIONS

No addition is currently planned. Any additions are required to comply with IEBC Chapter 10 and would trigger a height and area evaluation under MSBC Chapter 5.

Please do not hesitate to contact us with questions regarding the content of this report.

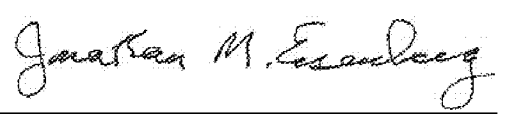
Sincerely,

ROLF JENSEN & ASSOCIATES, INC.

Prepared By:

Jeremy Lebowitz

Reviewed By:



Jonathan Eisenberg, P.E.

JL:jme
B52104

Accessibility Overview

KlingStubbins, as a component of its Study project, has conducted an overview of the accessibility issues that may need to be addressed in a renovation of the Massachusetts State Laboratory Facilities at Jamaica Plain, Massachusetts. Although the campus is comprised of 3 buildings, the overview was limited to the Stable Building and the Tower Building at the request of DCAM. No overview was conducted for the Biologics Building, because its use is restricted to UMMS employees only. If in the future, the Biologics Building is included in the renovations, it may need to be assessed for accessibility.

There are two different accessibility regulations that apply to the renovation of the renovation of the State Laboratory buildings. The state accessibility regulations, 521 Code of Massachusetts Regulations (CMR) and are a part of the State Building Code, and are enforced by the Building Inspector and the Massachusetts Architectural Access Board (MAAB). Any feature that is required to be compliant should be modified to meet the regulations unless a variance is requested through DCAM and granted by the MAAB. Even with an MAAB variance, there may be Americans with Disabilities Act (ADA) requirements that should be met.

The federal law governing accessibility in state and municipal buildings is Title II of ADA. It requires that all programs and services offered to the public be accessible, either structurally or programmatically. Non-structural accommodations can be used to provide access to physically inaccessible facilities, if provided in an equal and integrative way. The architectural requirements for compliance with the ADA are embodied in the American with Disabilities Architectural Guidelines (ADAAG) and are generally, but not always, similar to the requirements of the MAAB.

Jurisdictional Analysis of Massachusetts Architectural Access Board 521 CMR

The CAMIS value of each of the buildings, $58,532,390 for the Tower Building and $4,875,462 for the Stable Building respectively (See Figure 1).

The Estimated Construction Cost (ECC) for work performed within the Tower Building over the last three years is estimated to be approximately $8,000,000, which is less than 30% of the Capital Asset Management Information System (CAMIS) value.

The current Emergency Electrical Improvement project (DPH0702 EM1) will be solely limited to alterations of the mechanical and electrical systems of the Tower Building and is valued at $6,900,000 ECC. Therefore the project should comply with the requirements for an accessible public entrance, an accessible toilet room (single unisex), accessible telephone (if provided) and an accessible drinking fountain.

These elements should be provided as a part of the Emergency Electrical Improvement project or already be provided, per 521 CMR 3.3.1.b, b since the cost of the work exceeds $500,000. If the design consultant deems any aspect of compliance impracticable (as per 521 CMR 5.44), the consultant should

KlingStubbins 1030 Massachusetts Avenue Cambridge, MA 02138 617 491 6450

Accessibility Overview

notify the DCAM Project Manager in writing, with supporting technical data, so that DCAM can determine if a variance request is justified.

If any accessible elements in the recent renovation of the Stable Buildings are not in compliance with MAAB and ADAAG at the time it was completed, upgrades to current requirements should be included as a part of any work on the building.

Figure 1: Analysis of requirement for Compliance with 521 CMR 3.3 Existing Buildings

	Tower Building	Stable Building
CAMIS Value	**$58,532,390**	**$4,875,462**
30% of CAMIS Value	**$17,559,717**	**$1,462,638**
a. Value of repair work performed over the last three years	**Estimated $1,100,000**	**Estimated $0**
b. ECC of Repair Work	**Estimated $6,900,000**	**$0**
Total Value of Repair Work (a+b)	**$8,000,000**	**$0**
Triggers 30%	**No**	**No**

Jurisdictional Analysis of Title II of ADA (28 CFR 35.149.35.150 and 35.151)

The American with Disabilities Act is a civil rights law that is enforced by the US Department of Justice (DOJ). Its design requirements are contained in the ADAAG and have similarities to 521 CMR, but are not implemented or enforced as building code. Title II of the ADA requires that all new construction be non-discriminatory to people with disabilities. All design work should support the User Agency's obligations to provide equal benefits to users in the integrated setting without separate accommodation. It requires accessible features for employees as well as the general public. There are no variances, but DCAM and the User Agency may request Equivalent Facilitation from the DOJ for innovative alternative solutions that meet or exceed the requirements of the ADAAG. Where discrepancies exist between the ADAAG and MAAB, the designer shall use the more stringent requirement.

Existing Information: ADA Self-Assessment and Transition Plan

KlingStubbins understands that the ADA Self Assessment and Transition Plan for the Tower Building and the Stable Building have been completed.

Accessibility Overview

Existing Conditions.

On March 20, 2009, KlingStubbins along with DCAM visited the Tower and Stable buildings at the Massachusetts State Laboratory Facilities at Jamaica Plain, Massachusetts to assess accessibility barriers that would need to be removed or mitigated if the Tower Building or Stables Buildings were to be renovated.

This overview formulates a high level project cost impact perspective of the accessibility issues; the report is general in nature and does not cover every non-conforming aspect of the facilities. The spaces that were reviewed include the following: Building Entry, Elevators, Stairs, Auditorium and Toilet Rooms. These elements were selected based upon the highest cost impact for project budgeting.

Executive Summary

The overview found that most accessibility issues are in the Tower Building. The primary issues, which will have a cost impact on renovations, are the toilet rooms and the configuration of the railings in the egress stairs. The toilet room vestibules are under sized for wheelchair access into these spaces and the showers are inaccessible. To correct these non-compliance issues, all toilet rooms will need to be reconfigured in some manner, which in turn may impact the MEP systems in the building as well as partitions and finishes. All egress stairs require the removal of existing railings and the installation of new railings in all stairs. Based on either the number of occurrences or the complications involved for both areas of concern, the cost of these renovations could be significant.

Only a few minor issues were found with the Stable Building.

Summary of Accessibility Improvements Required in the Tower Building

The scope of the accessibility improvements required by the MAAB and the ADA to be made as part of the renovation of the Tower Building in this project is as follows:

A. Improvements Required to be in Compliance with MAAB
    1. Accessible Entrance: An accessible path to the front door and an accessible entrance are provided.
    2. Accessible Toilet: Currently no toilets meet the requirements for accessibility in the Tower Building. A unisex accessible toilet room should be provided.
    3. Drinking Fountain: Drinking fountains in the Tower Building are not accessible. An accessible drinking fountain should be provided.
    4. Accessible Telephone: There are no public telephones in the Tower Building. An accessible public telephone does not need to be provided.

KlingStubbins 1030 Massachusetts Avenue Cambridge, MA 02138 617 491 6450

Accessibility Overview

B. Improvements Required to be in Compliance with ADA/ADAAG

1. Accessible Entrances and Paths of Travel: Not all entrances are accessible. All entrances used by general public and general employees should be compliant. Provide power assist to high-traffic doors and where wind conditions may make the doors non-compliant under conditions of extreme pressure on the face of the doors.
2. Accessible Parking and Drop-off: Accessible parking and drop-off are provided.
3. Accessible Vertical Circulation (Elevator and Stairs): Elevators, though sufficient in size, do not have accessible controls, signage or warning/audio signaling internally in the cabs or at lobbies. These accessible components should be provided. Stairs have several components that do not comply including railings, tread/riser heights and widths, and nosings. Compliant elements in the stairs should be provided.
4. Accessible Interior Path of Travel including Doors, Maneuvering Spaces, Protruding Objects, etc: Many interior doors have not been configured to provide adequate maneuvering room for accessible entry in to rooms or have compliant hardware. Drinking fountains protrude into corridors. These component should be made accessible.
5. Public and Staff Restrooms and/or "Companion Toilets": Refer to requirements of MAAB. All of the Toilet Rooms and shower rooms have components of configurations of entries that make them non-compliant with accessibility requirements. While compliance has significant cost implications, toilet room and shower rooms should be made accessible.
6. Drinking Fountains: Refer to requirements of MAAB.
7. Telephones: Refer to requirements of MAAB.
8. Accessible Components to All Functional Areas such as Assembly Areas, Classrooms, Performing Spaces, Libraries, Food Service Accommodations: Various elements in these components are inaccessible, some of which are noted in the observations below. A comprehensive assessment of each of these spaces needs to be conducted and accessible elements should be provided.
9. Accessible Components for Public Transaction Area: Various elements in these components are inaccessible, some of which are noted in the observations below. A comprehensive assessment of each of these spaces needs to be conducted and accessible elements should be provided.
10. Controls and Alarms: Many areas are served with newly installed fire alarms systems. A comprehensive assessment of all rooms and areas of the building needs to be conducted, including alarm visible brightness, audible sound, and physical location. Any controls and alarms that are not compliant should be corrected or provided.
11. Signage: Signage has been provided in some instances, but it is not provided in a consistent manner. A comprehensive assessment of all signage and signage requirements needs to be conducted and accessible signage should be provided.
12. Assistive Listening Systems: Assistive listening systems are not present. Assistive listening systems for rooms with public functions and classrooms should be provided.

Tower Building

Accessibility Overview

General:

Observations: The primary areas of concern were Building Entry, Elevators, Stairs, Auditorium and Toilet Rooms. Below are specific observations made regarding each of those building elements.

Building Entry:

Observations: From the designated parking area there is an accessible route to the front entrance via a compliant ramp. Only the outside door is power assist at entrance for incoming pedestrian traffic.

Recommendations: It is recommended that the remaining doors, vestibules and door for outgoing pedestrian traffic be fitted with power-assist devices.

Elevators:

Observations: All the passenger elevators and service elevator are of sufficient size to be accessible. No audible signaling was present and the control panels in the cabs as well as the hallway call buttons are not within accessible reach for all passengers.

Recommendations: Replace the control panels inside the cabs and add the audible signals for floor indications. Relocate the hallway buttons to be within accessible reach, provide appropriate signage at each floor's elevator entrance, and add audible indications for arrival of the cars.

Stairs:

Observations: The stairs do not comply with the current requirements for riser heights and tread widths. Railings within the stairs are not positioned, configured or shaped to meet accessibility requriements. The nosings to the stair treads appear to be non-compliant with the 1 inch projection over the tread below. Underneath the bottom run of the stairs, clearances are not sufficient for walking beneath the stairs. The railings and tread nosings of the monumental stair appear to be non-complaint as well.

Recommendations: Given the type of construction of the egress stairs, it would be in the best interest of everyone to advocate that no changes be made to correct the riser heights and tread widths, which is typically granted by most jurisdictions. Replace the railings in the stair to current code compliant standards. Add overlay nosings to treads to bring treads into compliance where non-compliant. Add cane rails or other devices at bottom of stairs to prevent people colliding with protruding stairs elements that are below the required head-height clearances. Provide complaint railings and nosings if non-compliant.

Accessibility Overview

Auditorium:

Observations: On the lower level of the auditorium the floor is level and does not have fixed seating, so accommodation is made easily at set up time for each occasion. There is a raised stage, without compliant access. There is a fixed podium with AV controls that would need to be altered to accommodate someone speaking from a wheel chair. At the upper level, no accommodation has been made wheel chair seating. There is an internal stair, with noncompliant hand rails and treads /nosings. The stair also rises more than 12 feet without a landing.

Recommendations: It is our understanding that the stage also conveniently provides a higher floor to floor height for a space below, therefore some element must remain to accommodate this building configuration. It is recommended the stage be removed and replaced with some other element accommodating the configuration of the space below. Alter the podium for use by someone in a wheelchair. Provide wheelchair seating at the upper level by reconfiguring the upper level and adding railings or other devices to make accommodations, adjacent to the doors entering the auditorium at that level. As with the egress stair, it is recommended that the stair be left as is. Replace railing if required to comply, and add an overlay for the stair nosings.

Toilet Rooms:

Observations: Although a number of stalls in the toilet rooms have been enlarged and have had grab bars installed, the primary accessibility issue is the entrance into the toilet rooms themselves. The vestibules are not of sufficient size to be compliant. Additionally, the urinals and vanities are not compliant, because of incorrect mounting heights, and unprotected drainage piping. Several toilet rooms did not have accessible stalls complying with current size requirements. Shower stalls were not accessible either in approaches to them or in their size and accessories such benches and controls.

Recommendations: It is recommended that all toilet rooms be reconfigured with new compliant vestibules or separate accessible toilets be added to each floor. Shower should be configured to meet accessible standards as part of the toilet room/locker renovations. Fixtures that meet accessibility requirements and are mounted at proper heights with proper clearances should be provided, along with. protection to exposed drainage pipes. Accessories should be provided that are compliant and have correct mounting heights and clearances.

Other General Items:

Observations: Some other general observations noted were that the water fountains in the hallways protruded excessively into the hallways and would be an obstruction to the visually impaired and were not mounted at the correct heights to accommodate access from a wheelchair. The door handles are knob-type, instead of lever-type. Additionally, the loading dock which has a non-compliant ramp which would

Accessibility Overview

be required to be compliant if this entrance were to be used by employees as an accessible entrance. A number of serving counters and dispensers in the cafeteria server were not accessible from a wheelchair.

Recommendations: Drinking fountains should be relocated into a niche where practical and installed to proper heights and clearances, using a high/low configuration. Change out all door handles to the lever-type. Verify that the loading ramp is not required to be an accessible route, therefore not requiring any alterations. Replace or alter cafeteria serving counters and lines to be accessible.

Summary of Accessibility Improvements Required in the Stable Building

The scope of the accessibility improvements required by the MAAB and the ADA to be made as part of the renovation of the Tower Building in this project are as follows:

A. Compliance with MAAB
   1. Accessible Entrance: An accessible path to the front door and an accessible entrance are provided.
   2. Accessible Parking and Drop-off: Accessible parking and drop-off are provided.
   3. Accessible Toilet: Both male and female accessible toilets are provided at Level 2.
   4. Drinking Fountain: There are no accessible drinking fountains in the Stable Building. An accessible drinking fountain should be provided.
   5. Accessible Telephone: There are no public telephones in the Stable Building. An accessible public telephone does not need to be provided.

Building Entrances and Path of Travel:

Observations: Doors to entrance are not power assisted, but are compliant. No designated parking stall is provided.

Recommendations: Provide power assist to entrance doors. Provide proper striping and signage for parking stall.

Elevators:

Observations: Elevators appear to have been recently made compliant. No deficiencies were observed.

Stairs:

Observations: Stairs were recently renovated. No deficiencies were observed.

Accessibility Overview

Toilet Rooms:

Observations: The toilet rooms, which have been recently renovated, are for the most part compliant. There is one room on the second floor, where a unit heater has been installed behind the door entering the toilet room. This causes the door to not open fully, and it protrudes into clearance zone in front of the vanity for wheelchair access. One of the approaches to the toilet room on the first floor had a column protruding into the 12 inches of clearance required at the leading edge of the door.

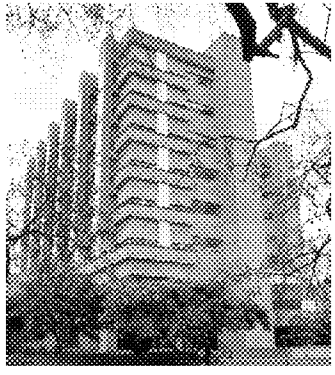
Recommendations: Recess the unit heater in the one toilet room or relocate it to provide the proper clearance for wheelchair access to the vanity. At the first floor, access should reviewed with building authority to verify the need for further action, as it would be recommended to leave access as is.

Attachment I

Summary of January 5, 2012 Workshop, including PowerPoint presentation and meeting report.

KLING STUBBINS

D·C·A·M
Division of Capital Asset Management
Building for the Commonwealth



Improvements to Massachusetts State Laboratory

Jamaica Plain, MA

Project Review Workshop

January 5, 2012

Agenda

1. Introductions and Purpose of Today's Meeting
2. Overview of Facility, Recent Improvements and Status of Current Work
3. Facility Program and Operations: Agency Organization and Current Locations of Activities; Facility Management
4. Current Building Conditions; Opportunities and Constraints
5. UMMS and DPH Short and Long Term Needs and Plans
6. Priority Projects that Can be Addressed Prior to Developing Long Term Renovation Approach
7. Long Term Plans: Renovation Options; Facility Operations Analysis; Resource Needs
8. Next Steps

Purpose of Meeting & Desired Outcomes:

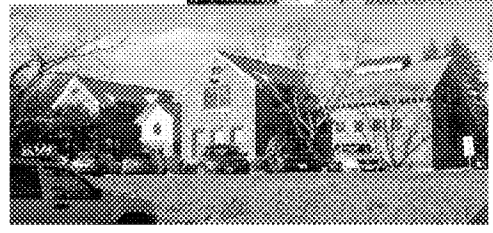
- Review current work, UMMS and DPH needs and plans
- Identify priority projects that can be addressed as longer term planning proceeds
- Establish resource requirements and necessary steps to develop a long term plan for a sustainable, efficient facility

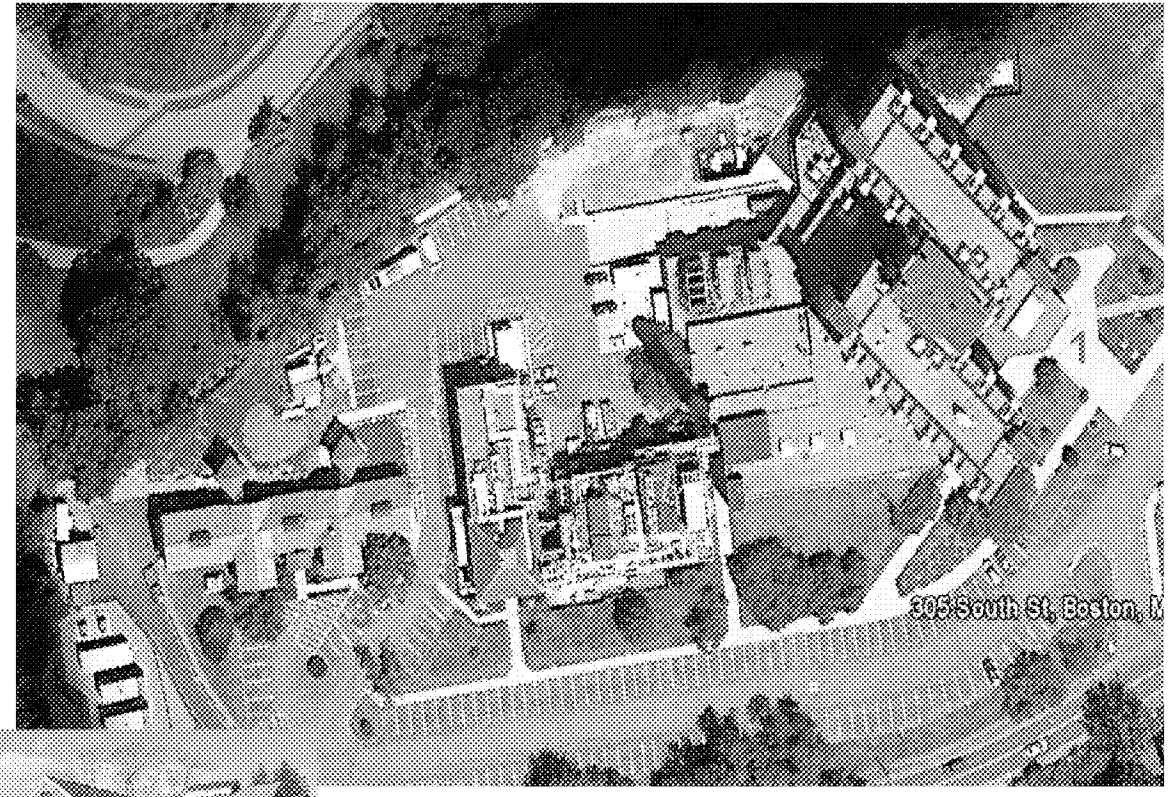
KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Campus Plan

1.	Tower	208,000 BGSF
2.	Biologics	34,000 BGSF
3.	Stable	18,000 BGSF
	Total	260,000 BGSF

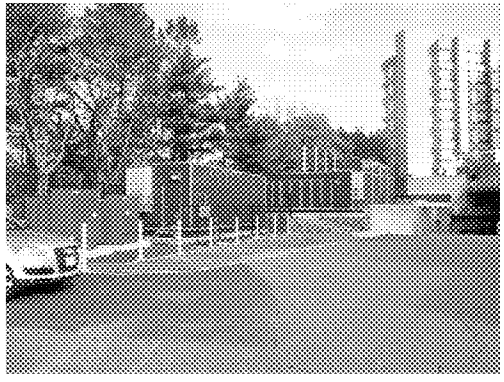


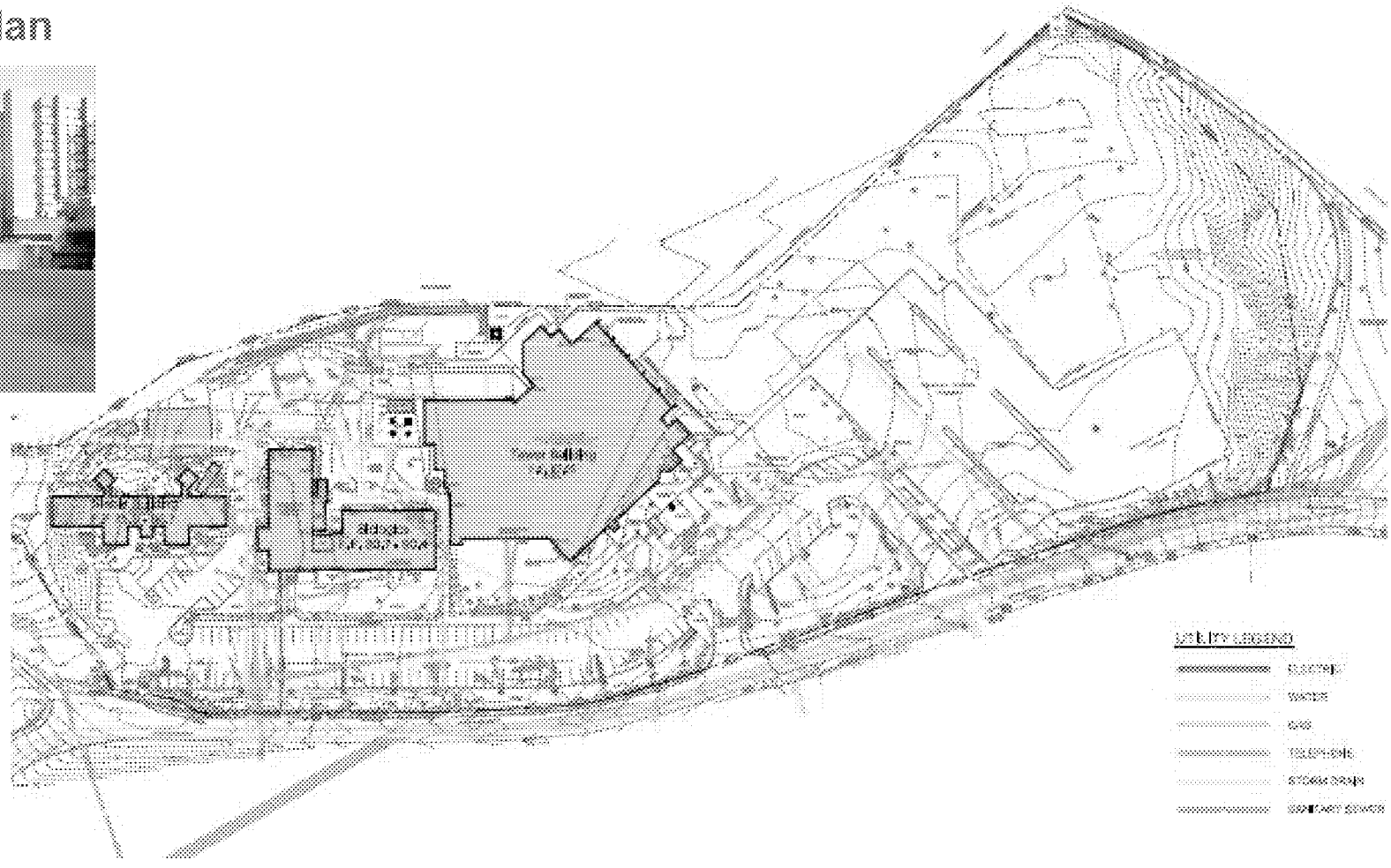


KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Campus Utility Plan

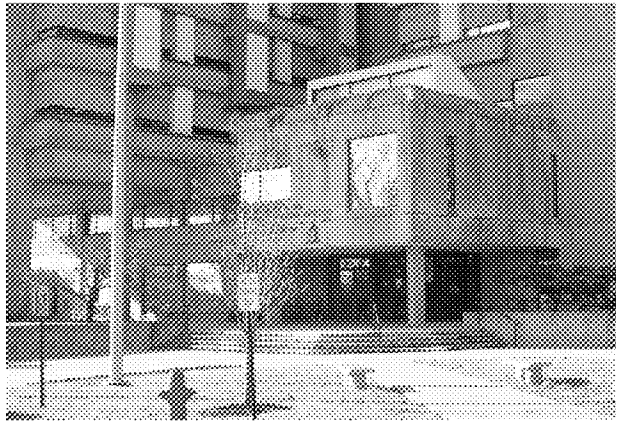


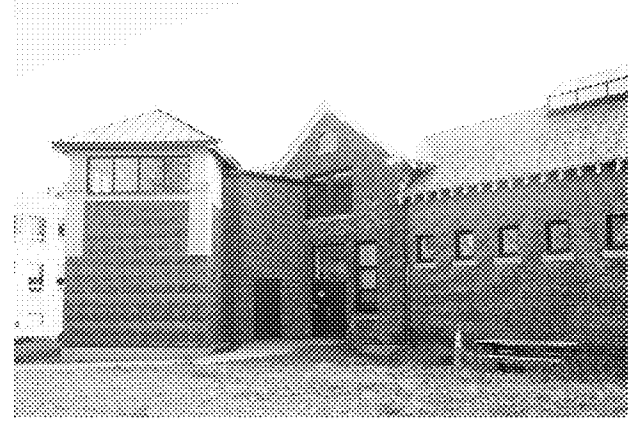


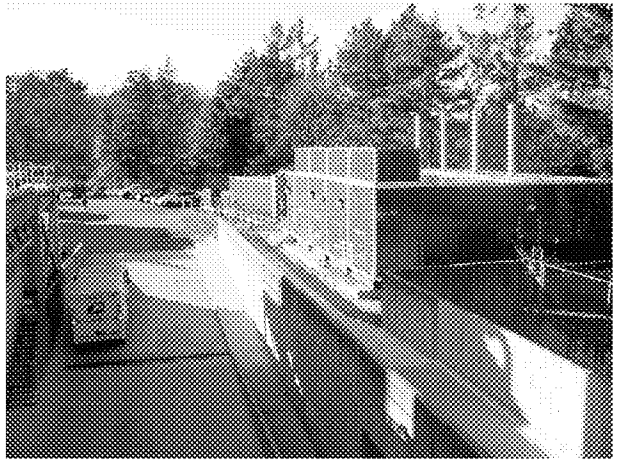
KLING STUBBINS

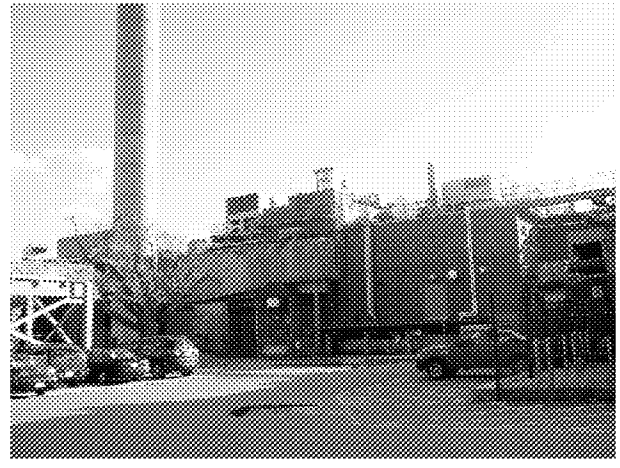
Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Exterior Campus Images





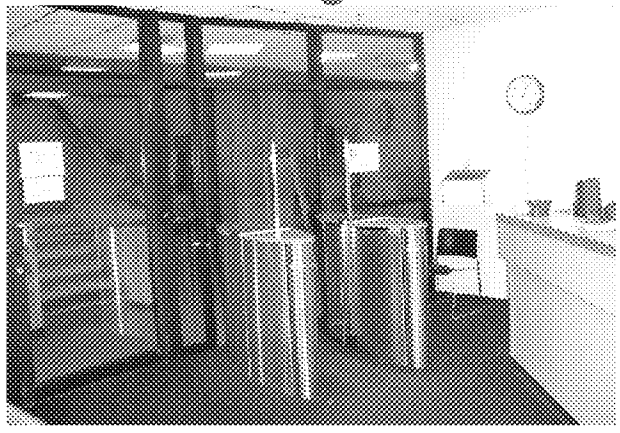
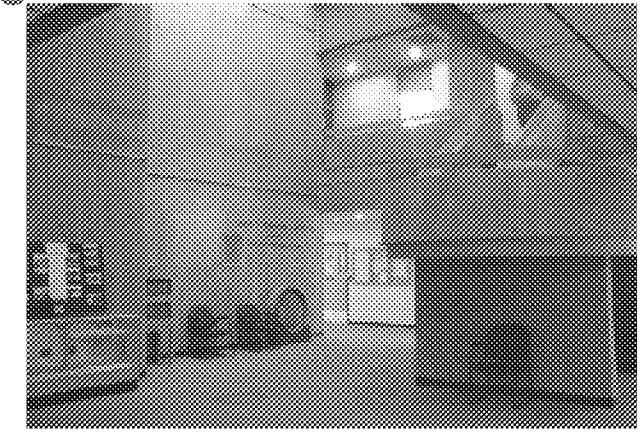
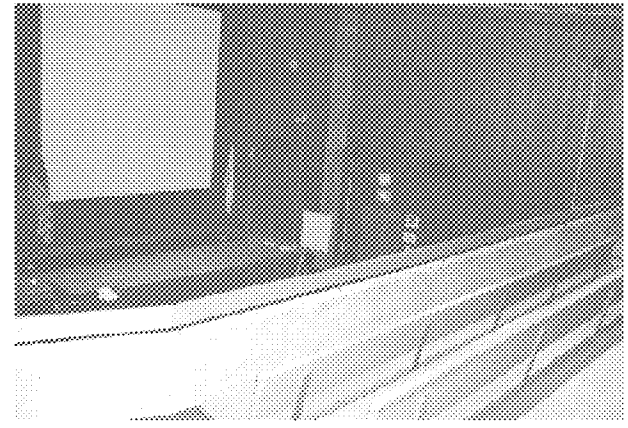


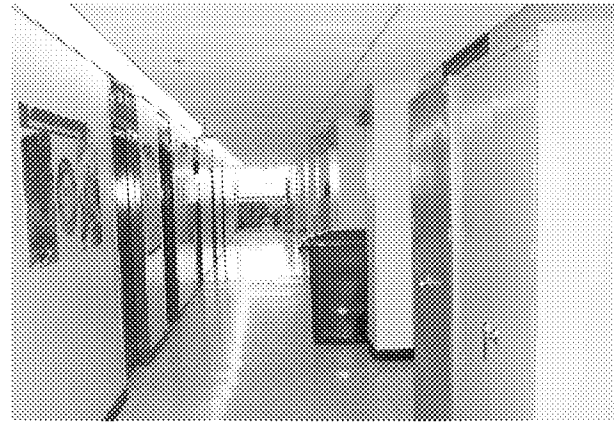
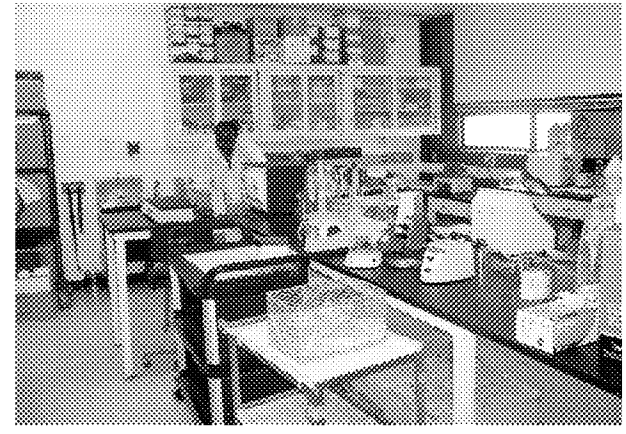


KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Tower Building Interior Images

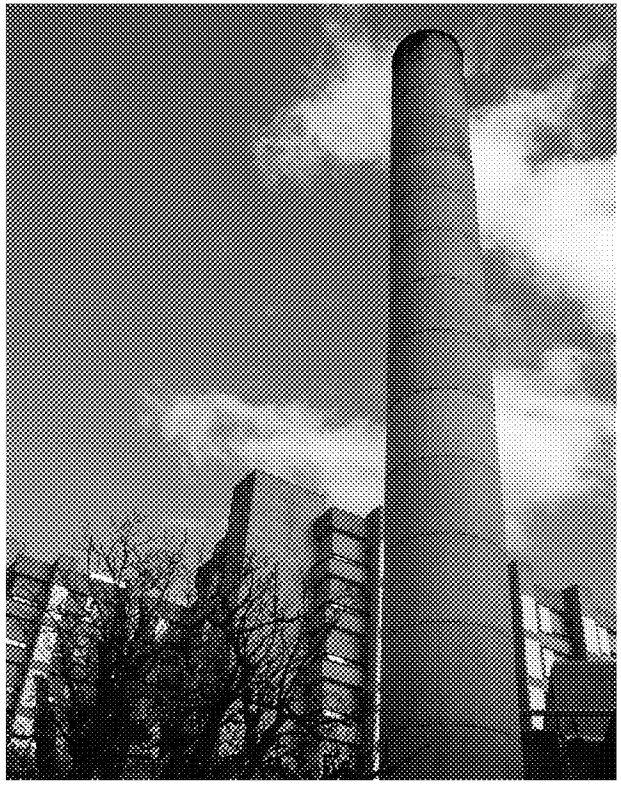




KLING STUBBINS

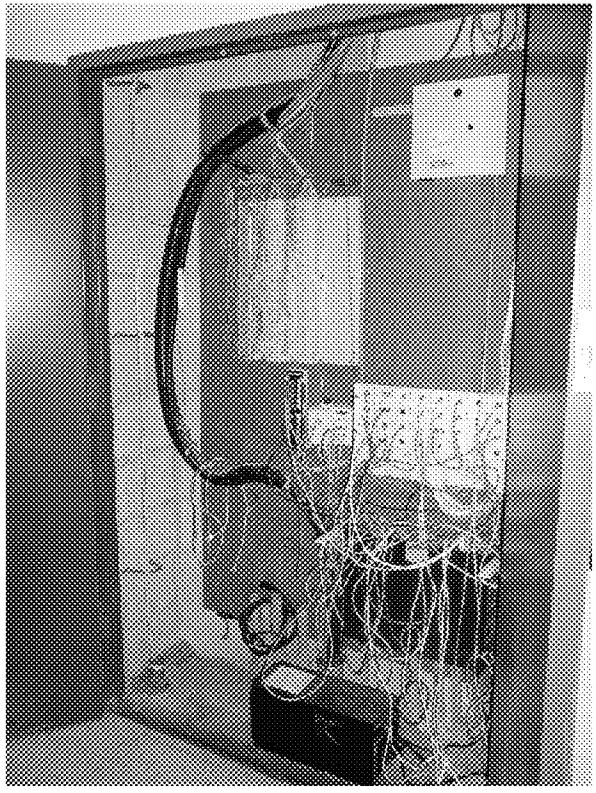
D·C·A·M
Division of Capital Asset Management
Building for the Commonwealth

Pending Boiler Study Objectives



- Investigate boiler replacement options
- Investigate fuel options for boilers
- Minimize operating cost and maintenance needs
- Maximize utility rebate potential
- Reduce carbon and environmental impact
- Provide exhaust flue analysis
- Test existing boilers
- Maintain user needs for high pressure steam
- Implementation and Financing to be determined

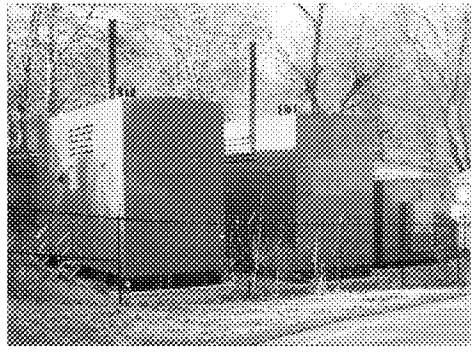
Building Overview – What is Deficient?



- Aged Electrical, Plumbing & HVAC Distribution Systems – further upgrades required
- Aged laboratory infrastructure (e.g. acid waste)
- Replace 220 VAVs in remainder of Tower Building
- Aged I/T Infrastructure
- Aged Elevator Components
- Exterior Envelope Deficiencies
- Accessibility Deficiencies
- Tired Finishes
- Low floor to floor height

Building Improvements

Status

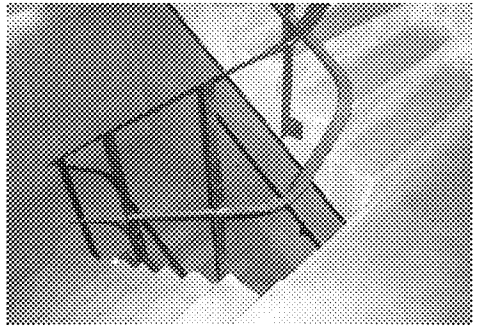


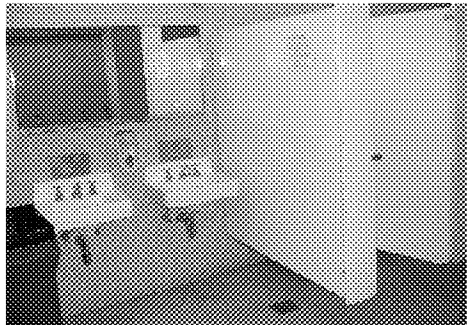
- Program & Existing Conditions Analysis 2007 – 2009
- Emergency Electrical Biologics Project Completed 2009
- Emergency Electrical Tower Project Completed 2011
- Emergency HVAC Tower Project Completed 2011
- Draft Final ST02 Report Submitted October 2011
- Boiler Study to be completed 1st quarter 2012

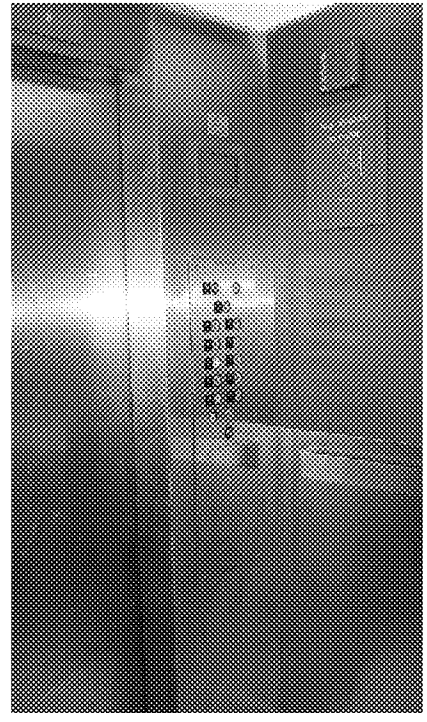
KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Recommended Accessibility Improvements for the Tower Building







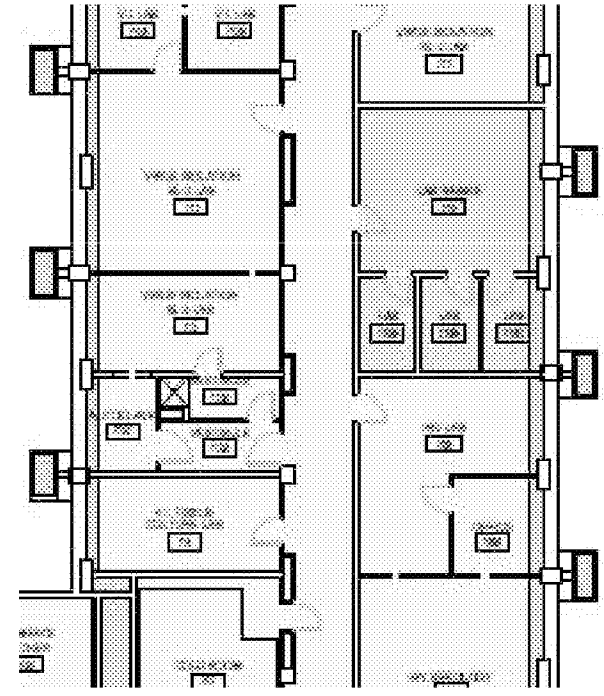
- Provide accessible parking spaces
- Provide accessible entrances
- Provide accessible toilet room(s)
- Provide accessible drinking fountain
- Provide accessible elevator controls
- Modify Stair Handrails

Project Constraints

- Location of swing space
- Neighborhood noise and other concerns
- Decontamination protocols
- 24/7 Facility operation
- Construction work schedule limitations
- No improvement budget established

Building Overview – What Works?

- 11' Module conducive to lab planning
- Flexible stair egress
- Single interior column line
- Exterior duct chases accessible for retrofit
- Robust structural system mitigates vibration concerns
- Shallow depth allows maximum interior light penetration

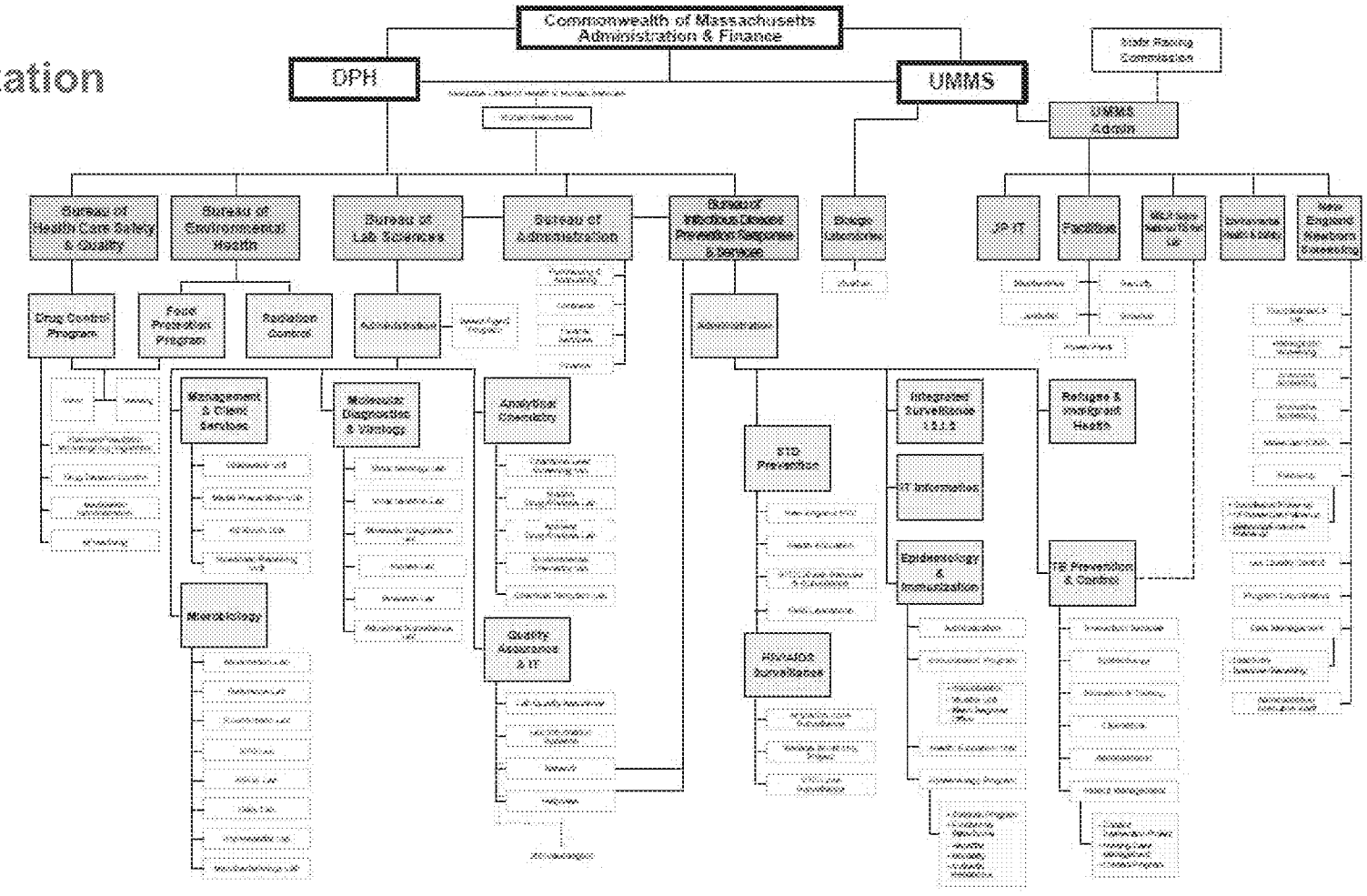


KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Campus Organization

September, 2011



Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

KLING STUBBINS

Existing Basement Plan

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

KLING STUBBINS

Existing 1st Floor Plan

KLING STUBBINS

Existing 2nd Floor Plan

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

KLING STUBBINS

Existing
4th Floor Plan

Existing
3rd Floor Plan

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

KLING STUBBINS

Existing 6th Floor Plan

Existing 5th Floor Plan

Division of Capital Asset Management
D.C.A.M.
Building for the Commonwealth

KLING STUBBINS

Existing
8th Floor Plan

Existing
7th Floor Plan

KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Program Summary

Tower Building

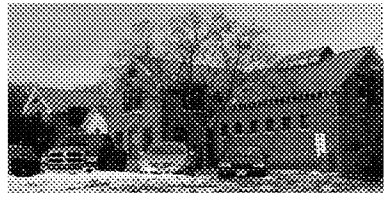
Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Administration	BIDPRS	9	1,180	750	120	150	150	150	1,450	1,050
1.2	Epidemiology and Immunization Admin	BIDPRS	28	2,340	1,641	120	120	100	100	2,560	1,861
1.3	Immunization Program	BIDPRS	36	3,320	2,034	0	0	310	310	3,630	2,344
1.4	HIV / AIDs Surveillance	BIDPRS	20	1,490	1,104	0	0	940	940	2,430	2,044
1.5	Information Technology and Informatics	BIDPRS	10	720	420	0	0	0	0	720	420
1.6	Integrated Surveillance	BIDPRS	24	2,260	1,086	0	0	0	0	2,260	1,086
2.1	Finance and Operations	BA	11	1,470	756	0	0	0	0	1,470	756
3.1	Administration	BLS	3	550	420	0	0	150	150	700	570
3.2	Analytical Chemistry	BLS	33	830	699	6,040	4,004	1,100	1,100	7,970	5,803
3.3	Laboratory Response & Communication	BLS	15	740	630	920	1,078	220	220	1,880	1,928
3.4	Management and Client Services	BLS	11	590	373	2,270	1,916	1,030	1,030	3,890	3,319
3.5	Microbiology	BLS	23	920	690	2,260	1,848	1,020	1,020	4,200	3,558
3.6	HIV / Hepatitis Lab	BLS	11	290	126	1,110	1,232	370	370	1,770	1,728
3.7	Mycobacteriology (TB) Lab	BLS	16	600	486	1,860	1,540	480	480	2,940	2,506
3.8	Food/Enteric Lab, PFGE Lab and Dairy Lab	BLS	16	70	63	2,760	2,310	0	0	2,830	2,373
3.9	Molecular Diagnostics and Virology	BLS	38	1,030	762	2,960	4,312	810	810	4,800	5,884
3.10	Virology- Virus Isolation Lab and Virus Serology Lab	BLS	9	310	168	1,330	770	250	250	1,890	1,188
3.11	Quality Assurance and IT	BLS	13	705	486	480	616	730	730	1,915	1,832
4.1	Food Protection Program	BEH	28	2,250	1,176	0	0	0	0	2,250	1,176
4.2	Radiation Control Program	BEH	8	330	168	670	616	130	130	1,130	914
5.1	Drug Control Program	BHCSQ	14	760	486	680	770	330	330	1,770	1,586
6.1	Food & Drug Admin, Licensing, & Shared Spaces	BEHHCSQ	11	1,380	669	0	0	280	280	1,660	949
7.1	JP Campus Operation	UMMS	6	840	588	0	0	30	30	870	618
7.2	JP IT	UMMS	6	990	435	0	0	400	400	1,390	835
7.3	New England Newborn Screening	UMMS	53	3,690	2,349	4,410	3,638	900	900	9,000	6,887
7.4	Biologics	UMMS	5	260	42	2,120	2,138	2,040	2,040	4,420	4,220
7.5	Massachusetts Supra National TB Reference	UMMS	9	690	408	420	462	0	0	1,110	870
8.1	Human Resources	EOHHS	1	160	150	0	0	0	0	160	150
9.1	National Lab Training Network	Tenant	2	190	183	0	0	100	100	290	283
10.1	Common Areas	UMMS	20	1,500	1,080	4,400	4,400	18,780	18,780	24,680	24,260
11.1	May 2011 Vacant Space			1,690	0	3,220	0	1,070	0	5,980	0
											0
	Total Net SF		**489**	**34,145**	**20,428**	**38,150**	**31,920**	**31,720**	**30,650**	**104,015**	**82,998**

Program Summary

Biologics Building

Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square Foot
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Epidemiology and Immunization	UMMS	TBD	3,210	3,210	5,030	5,030	11,510	11,510	19,750	19,750
											0
											0
											0
	Total Net SF			**3,210**	**3,210**	**5,030**	**5,030**	**11,510**	**11,510**	**19,750**	**19,750**

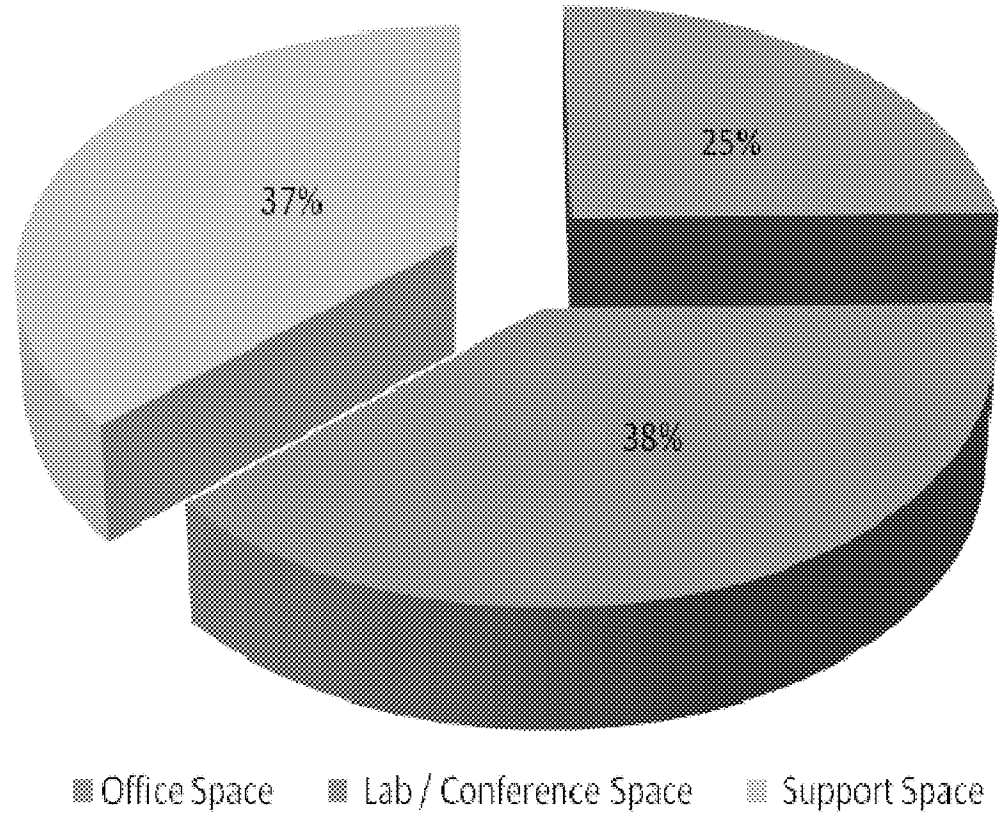
Stable Building



Group Code	User Group	Agency / Bureau / Program	FTEs	Office		Lab / Conference		Support		Existing Net Square Feet	Right-Sized Total Net Square Feet
				Existing	Right-Sized	Existing	Right-Sized	Existing	Right-Sized		
1.1	Administration	BIDPRS	TBD	180	180	0	0	0	0	180	180
1.2	Epidemiology and Immunization Admin	BIDPRS	TBD	410	410	0	0	10	10	420	420
1.3	STD Prevention	BIDPRS	TBD	1,850	1,850	0	0	60	60	1,910	1,910
1.4	Refugee & Immigrant Health	BIDPRS	TBD	920	920	570	570	20	20	1,510	1,510
1.5	TB Pevention & Control	BIDPRS	TBD	1,720	1,720	420	420	130	130	2,270	2,270
1.6	Common Areas	BIDPRS	TBD	0	0	0	0	2,480	2,480	2,480	2,480
	Total Net SF			**5,080**	**5,080**	**990**	**990**	**2,700**	**2,700**	**8,770**	**8,770**

Program Summary

- 38% Laboratory Functions
- 25% Office Space
- 37% Support Space & Building Services



Tower Building Capacity

Based on program right-sized projections, and does not account for required adjacencies, or those areas which may be presently constricted by spatial constraints.

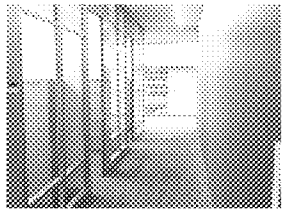
Required BGSF	150,000 (Current program)
Growth BGSF	0 (Not included)
Total needed BGSF	**150,000**
Available BGSF	***208,000***
Capacity BGSF Surplus	**58,000**

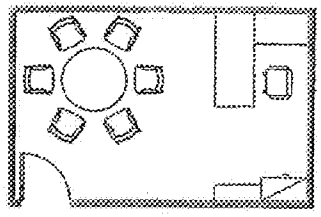
KLING STUBBINS

D·C·A·M
Division of Capital Asset Management
Building for the Commonwealth

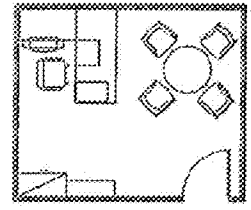
Proposed Workspace Standards

Offices

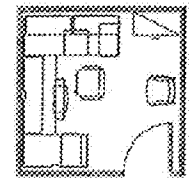




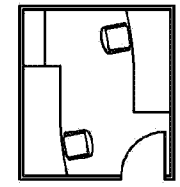
220 SF
Agency
Head



150 SF
Senior Mgr
Director

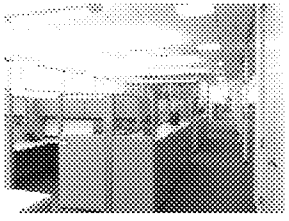


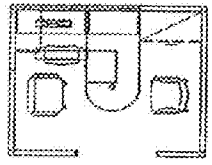
120 SF
Mgr



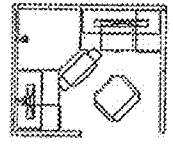
120 SF
Lab Super
(2 people
per Office)

Workstations

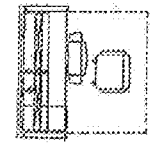




64 SF
Senior
Professional

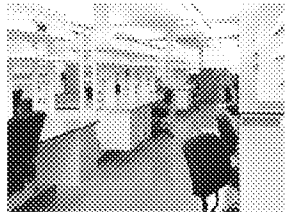


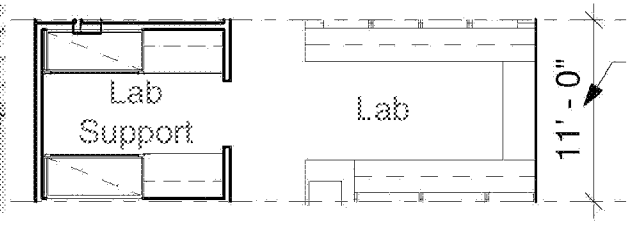
42 SF
Professional
Support Staff



36 SF
Intern / Lab Tech

Lab Module



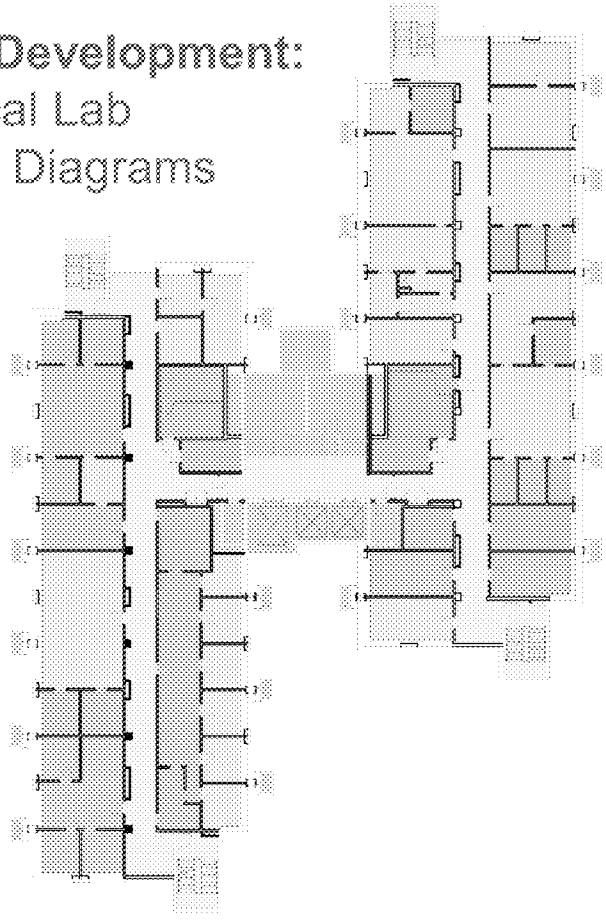


Building Module
14 LF Bench Per Lab User
Accommodates 2 Lab Users
154 SF Per Person

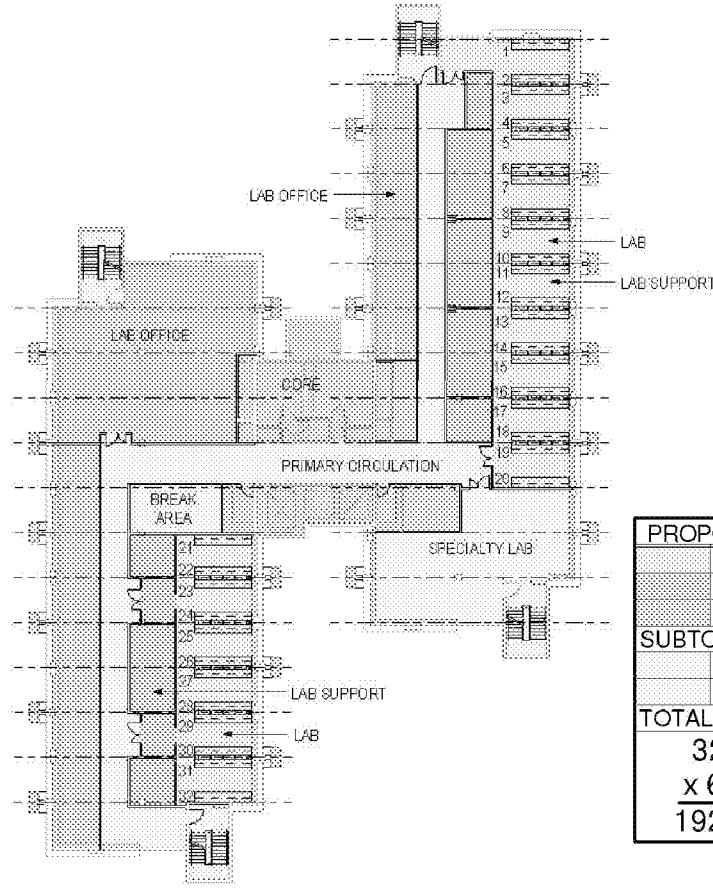
KLING STUBBINS

D·C·A·M
Division of Capital Asset Management
Building for the Commonwealth

Option Development:
Typical Lab Floor Diagrams



Existing Total Plannable Area = 9,123



Proposed Total Plannable Area = 9,721

Note:
The proposed diagram provides increased space flexibility and efficiency by grouping space types together and reducing primary circulation.

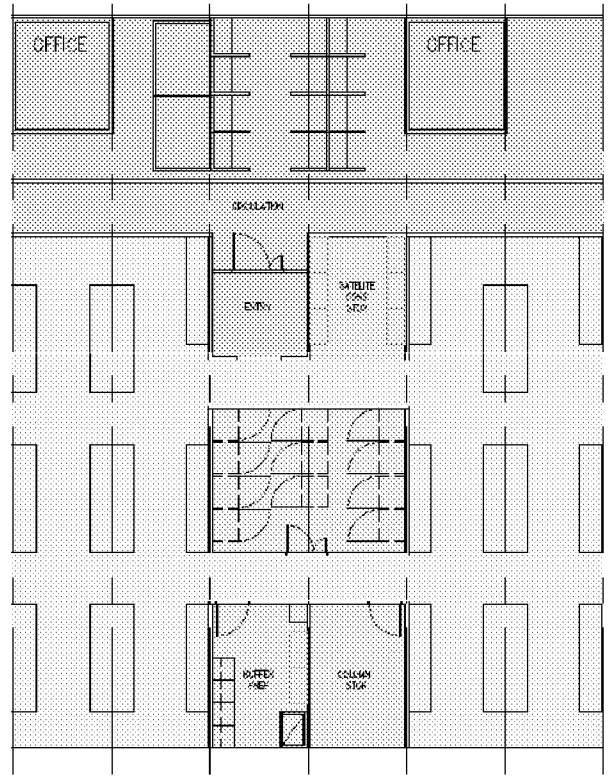
PROPOSED SQUARE FOOTAGES		
	LAB	3,332
	LAB SUPPORT	1,555
	WORKSPACE	3,440
SUBTOTAL PLANNABLE AREA		8,327
	SPECIALTY LAB	1,128
	BREAK AREA	266
TOTAL PLANNABLE AREA		9,721

32 LAB USERS PER FLOOR
x 6 FLOORS
192 POTENTIAL LAB USERS

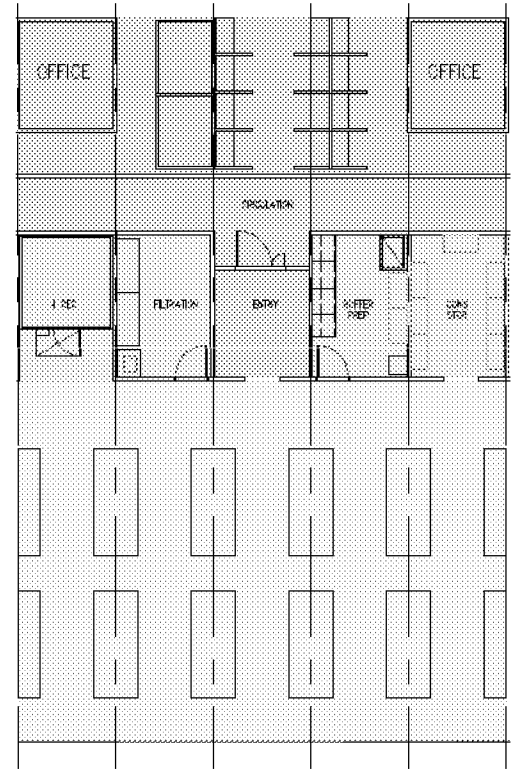
KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

Flexible Lab Planning



"Book End" Support Zone

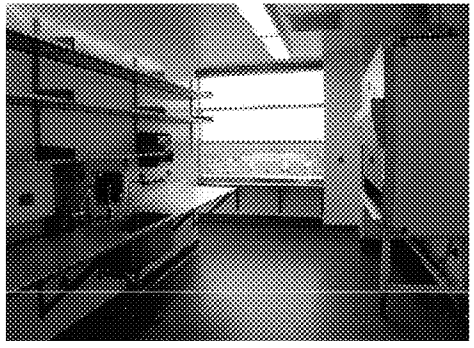


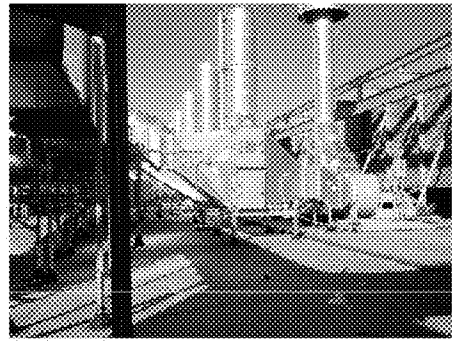
Linear Support Zone

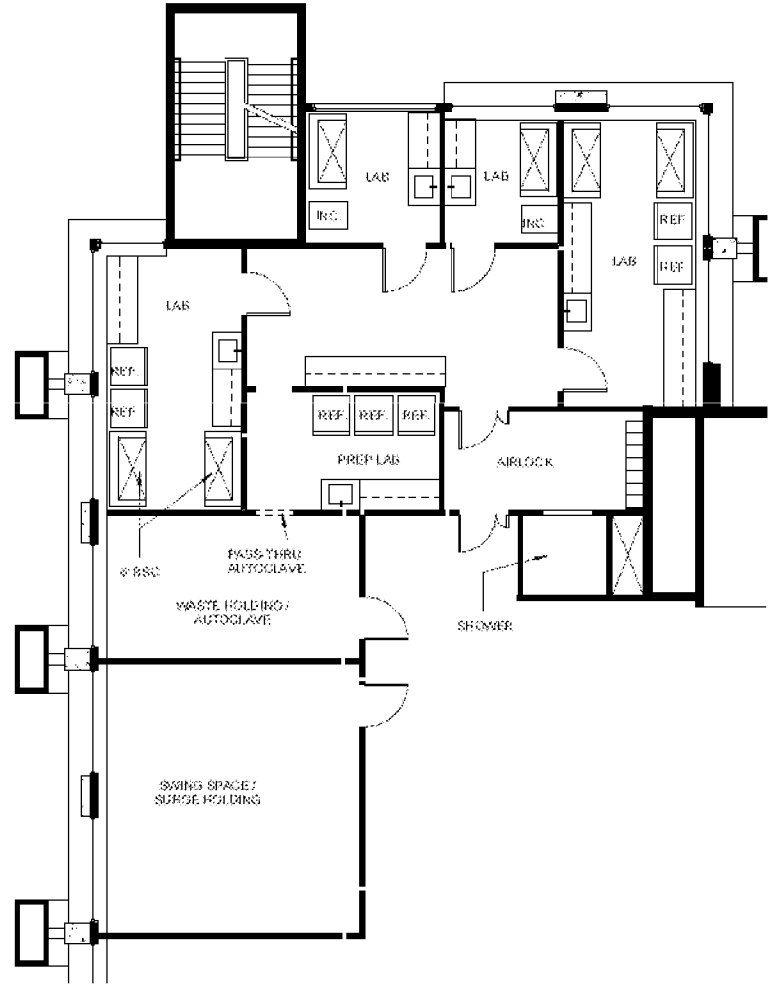
KLING STUBBINS

Division of Capital Asset Management
D·C·A·M
Building for the Commonwealth

BSL-3 Suite Concept Planning







Dry-Lab_email_PRR_002245

Improvement Options I:

Priority projects that can be implemented without impacting future planning options

Project	Total Project Cost	Notes
Elevator Replacement	$1.5 – 2m	No impact on long term
Boiler and Fuel Source Replacement	$8 – 10m	May be financed as energy project
Other energy improvements	TBD	Could be coupled with Boiler replacement
Accessibility Compliance	TBD	
I/T Upgrade	$1 – 1.5m	Some impact on space use

Improvement Options II:
Projects which may impact future planning options

Project	Total Project Cost	Notes
HVAC: Complete VAV Replacement	$3 – 4m	Corridor placement could be problematic
Plumbing System Upgrade	TBD	Could impact current layout
Envelope Repairs	TBD	May disrupt occupancy
Additional Energy Conservation Measures	TBD	Could be coupled with Boiler replacement

Recommended Long Term Planning Approach

- Develop Renovation Approach to best organize functions for safe, efficient, flexible long term use.
- May require reorganization of lab plans per diagram with MEP, Tel/Data and all support systems matched to space use.
- Floor by floor renovation will require major capital investment and temporary as well as permanent relocations of lab and other units.
- Prerequisite may be review of operations and workflow ("LEAN" analysis as is being performed in other facilities)
- Total Project Cost $100m range

Next Steps

- Confirm and Proceed with Priority Projects based on available resources to extent possible; identify additional resources needed.
- Develop Major Renovation Option to Concept Level for review and agreement and definition of cost and other requirements
- Initiate planning for Operations and Workflow Analysis with LEAN consultant

Meeting Minutes

KLING STUBBINS

Project No. 36-0707-00	Project	Mass State Laboratory Improvements Study
	Purpose	Project Review Workshop
	Meeting Date	January 05. 2012
	Issue Date	January 17, 2012
	Location	1 Ashburton Place 21st floor Room #1
		DCAM Project No: *DHP0702-ST1*

Attendees:				**Distribution:**	
Charlie Deknatel	DCAM			Attendees	
Bob Barry	DCAM			KS Team	
Paul Ford	DCAM			Kevin Cranston, DPH	
Ellen Whittemore	DCAM			Sandra Duran, DCAM	
Liz Minnis	DCAM			Scott Hennigan, DPH	
Vincent Cirigliano	BSB				
BJ Mohammadipour	BSB				
Tony Ransom	DCAM				
Hope Davis	DCAM				
Michael Reinhardt	DCAM				
Ed Nicosia	DCAM				
Tom Tagan	DCAM				
Shirin Karanfiloglu	DCAM				
John Baker	UMMS				
Jim Aquilino	UMMS				
John Nickerson	UMMS				
Jay Mitchell	UMMS				
Mark Waterbury	EOHHS				
John Auerbach	DPH				
Linda Han	DPH				
Grace Connolly	DPH				
Monica Valdes-Lupi	DPH				
Ceci Dunn	DPH				
Steve Broadhead	KlingStubbins				
Joe Castner	KlingStubbins				
Chris Ham	KlingStubbins				
Joe Bonanno	RDK				
Scott Guertin	RDK				
Joe Donahue	Keville				

The following is a record of the above referenced meeting.		
Item	**Action By**	**Description**
1.0		**Purpose**
1.1	Record	The purpose of the meeting was to provide a status overview of the study investigation to date (as a follow-up of the submission of the KlingStubbins ST02R report, dated October 2011) and to determine the future steps of the study process. Agenda items included: ▪ Introduction

		▪ Overview of Facility ▪ Facility Program and Operations ▪ Current Building Conditions ▪ Short and Long Term Needs ▪ Priority Project Discussion ▪ Next Steps
2.1		**Facility Overview**
2.2	Record	The KlingStubbins team provide a PowerPoint presentation which included an overview of the facility's existing conditions and recent improvements: ▪ Two emergency electrical projects ▪ Emergency HVAC project ▪ Current Boiler study sub task A copy of the presentation is attached to this meeting report.
2.3	Team	UMMS noted that although the emergency HVAC work is substantially complete, there are on-going systems control issues which need to be addressed. The compatibility issues indicate that completing the HVAC work in terms of the remaining VAV's and related controls is a priority need. *Update: A meeting on 1/9/12 was held to discuss open issues. It is anticipated that most items will be closed by 1/22/12.*
2.4	Team	UMMS questioned if sustainable alternatives had been considered for the boiler replacement. KlingStubbins noted that use of solar, geothermal, and CHP had been evaluated, but not advanced. Such items could be further investigated during final design. Site conditions and potential improvements were discussed including drainage and access,
3.0		**Facility Program**
3.1	Record	KlingStubbins presented a program overview, based on 2009 FTE counts, without growth. UMMS occupies approximately 20% of the building, and DPH users occupy the remainder of the building.
3.2	Record	KlingStubbins noted based on the 'right-sized' program projection it is likely that up to two floors of the Tower Building could be surplus space, provided a more efficient layout is deployed throughout the building. Such space could be utilized a swing space to facilitate a more comprehensive building renovation. UMMS asked for the yield of on e floor fully built out for office space. Lab flexibility was discussed with respect to the reorganization of lab floors to provide support and lab space in a lay-out that would require shift building circulation. The Stable and Biologics Building were discussed briefly.
3.3	Record	UMMS noted that they are experiencing a decrease in wet lab needs, and seeing an increase in dry lab environments. DPH noted that certain areas appear undersized and crowded and that certain labs will need defined separate space due the nature of work being conducted. DPH I/T problems were discussed, and are still being defined, but will need to be addressed.
3.4	DCAM	DCAM noted that it may be beneficial to implement an operational and workflow analysis with a LEAN consultant as a prerequisite to a major renovation of the building.
4.0		**Current Building Conditions**
4.1	Record	Building deficiencies discussed include: ▪ Electrical, Plumbing & HVAC Distribution systems ▪ Aged laboratory infrastructure (e.g. acid waste) ▪ VAV replacement in remainder of Tower Building ▪ I/T Infrastructure needs replacement (no fiber optics in building)\

		▪ Aged Elevator Components ▪ Accessibility Deficiencies ▪ Discussion focused on which were priority items and what was their impact on longer term renovation and how these improvements might be financed.
4.2	Record	Positive building attributed discussed include: ▪ 11' Module conducive to lab planning ▪ Flexible stair egress – excess stair capacity could be utilized to accommodate new infrastructure requirements such as ductwork or data closets ▪ Exterior duct chases accessible for retrofit ▪ Robust structural system mitigates vibration concerns
4.3	Record	The building has some ADA deficiencies, which should be addressed, including: ▪ Provide accessible entrances ▪ Provide accessible parking spaces ▪ Provide accessible toilet room(s) ▪ Provide accessible drinking fountain ▪ Provide accessible elevator controls
4.4	Record	The comparison of full building renovation, siting and constructing a replacement facility was discussed, but concluded to be equally or more expensive and with major feasibility and site location concerns. It was noted that there could be significant permitting issues due to the nature of the BSL-3 laboratories if the building were replaced rather than renovated.
5.0		**Short and Long-term Needs**
5.1	Record	KlingStubbins noted that potential near-term projects which could be implemented with minimal disruption to building users include: ▪ Elevator Replacement ▪ Boiler Replacement ▪ Accessibility Compliance ▪ I/T upgrades ▪ Roof replacement
5.2	Record	Projects which may require interim disruptions to users, or impact future renovation include: ▪ Complete VAV replacement ▪ Plumbing, Electrical, and HVAC distribution system renovations ▪ Exterior envelope repairs ▪ Other building core facilities, such as toilet rooms
5.3	Record	Longer term renovation needs including a floor by floor renovation will require major capital investment and temporary as well as permanent relocations of lab and other units, and could be developed as a multi-phase project.
6.0		**Priority Project Discussion**
6.1	DCAM	DCAM noted that although no capital budget dollars are currently in place for the MSL, other discretionary funds could be combined should a near-term project emerge. Such monies could include the Energy program, deferred maintenance, and accessibility improvements.
6.2	Team	KlingStubbins noted that since the boiler project would have a relatively short pay-back period, additional energy-related improvements could be coupled with the boiler project, if this work proceeded as an energy project.
7.0		**Next Steps**
7.1	Team	KlingStubbins will develop a renovation option matrix which will sort proposed building improvements into 3 categories: ▪ Potential Energy Project ▪ Near-term renovation ▪ Long-term renovation The matrix will provide estimated costs associated with proposed improvements in order to facilitate the reservation of capital funds for implementation.

7.2	KlingStubbins	KlingStubbins will draft a revised Work Plan for the MSL study to incorporate the work described in item 7.1 above,
8.0		**Next Meeting**
8.1	Team	The next meeting will be scheduled for mid-February. *Update: The meeting is tentatively scheduled for 2/16/12, at 2PM.*

These minutes were prepared by KlingStubbins for the purpose of recording information covered at the meeting. Should anyone object to any statements or interpretations contained herein, please advise this office within 5 days of this memo or the minutes stand as written.

Prepared by: Steve Broadhead